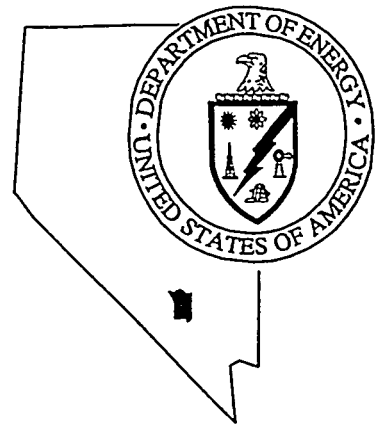


Nevada
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RESOURCE CONSERVATION AND
RECOVERY ACT

CLOSURE REPORT

AREA 2 BITCUTTER AND POSTSHOT
CONTAINMENT SHOPS INJECTION WELLS
CORRECTIVE ACTION UNIT 90

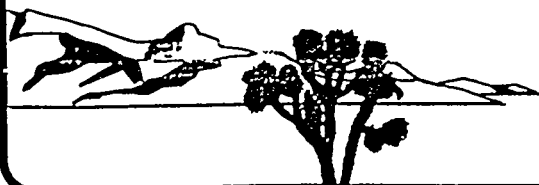
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December 1996

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U.S. Department of Energy
Nevada Operations Office

**RESOURCE CONSERVATION AND RECOVERY ACT
CLOSURE REPORT**

**AREA 2 BITCUTTER AND POSTSHOT
CONTAINMENT SHOPS INJECTION WELLS
CORRECTIVE ACTION UNIT 90**

December 1996

*Prepared for
United States Department of Energy
Nevada Operations Office
Environmental Restoration Division
Under Contract No. DE-AC08-96NV11718*

*Prepared by
Bechtel Nevada
Remediation Projects*

MASTER



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ABBREVIATIONS AND ACRONYMS

ASTM	American Society for Testing and Materials
bgs	below ground surface
BN	Bechtel Nevada
CAU	Corrective Action Unit
CAS	Corrective Action Site
CFR	Code of Federal Regulations
COCs	Constituents of Concern
cm	centimeter(s)
yd ³	cubic yard(s)
DOE/NV	Department of Energy/Nevada Operations Office
FFACO	Federal Facilities Agreement and Consent Order
ft	feet
gal	gallon(s)
in	inch(s)
kg/cm ²	kilograms per square centimeter
LDR	Land Disposal Restrictions
L	liter(s)
m	meter(s)
m ³	cubic meters

ABBREVIATIONS AND ACRONYMS (continued)

mg/L	milligrams per liter
mg/kg	milligrams per kilogram
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NTS	Nevada Test Site
PE	Professional Engineer
PPE	personal protective equipment
ppm	parts per million
psi	pounds per square inch
RCRA	Resource Conservation and Recovery Act
REECo	Reynolds Electrical & Engineering Co.
RSN	Raytheon Services Nevada
SOP	Standard Operating Procedure
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOCs	volatile organic compounds

1.0 CLOSURE CERTIFICATION

1.1 CERTIFICATION OF CLOSURE BY THE DEPARTMENT OF ENERGY/NEVADA OPERATIONS OFFICE

I certify under penalty of law that the Bitcutter and Postshot Containment Shops Injection Wells located in Area 2 at the Nevada Test Site have been closed in accordance with the approved Resource Conservation and Recovery Act Industrial Site Environmental Restoration Closure Plan, Area 2 Bitcutter and Postshot Containment Shops Injection Wells, dated December 1995 and the Permit for a Hazardous Waste Management Facility Number NEV HW009, United States Department of Energy, Nevada Operations Office, Nevada Test Site, I.D. Number NV3890090001, dated March 27, 1995. All measures required in the Closure Plan and the applicable Resource Conservation and Recovery Act 42 U.S.C. 6901-6991i and Title 40 CFR §260-268 have been fully implemented and that, to the best of my knowledge, no violations exist.

for Joseph N. Fiori
Terry A. Vaeth, Acting Manager
Department of Energy/Nevada Operations Office

Dec 19, 1996
Date

Department of Energy/Nevada Operations Office
Post Office Box 98518
Las Vegas, Nevada 89193-8518

1.2 CERTIFICATION OF CLOSURE BY THE INDEPENDENT PROFESSIONAL ENGINEER

I, Dean D. Nelson, a registered Professional Engineer, hereby state that I have reviewed the Closure Plan for the closure of the Bitcutter and Postshot Containment Shops Injection Wells located in Area 2 at the Nevada Test Site and am familiar with the rules and regulations of Title 40 CFR §265.310 pertaining to the closure of such a facility. The closure of this facility has been performed in compliance with the approved Resource Conservation and Recovery Act Industrial Site Environmental Restoration Closure Plan, Area 2 Bitcutter and Postshot Containment Shops Injection Wells, dated December 1995 and the Permit for a Hazardous Waste Management Facility Number NEV HW009, United States Department of Energy, Nevada Operations Office, Nevada Test Site, I.D. Number NV3890090001, dated March 27, 1995.



Dean D. Nelson Dec 12, 1995
Tennessee Professional Engineer
License Number 00020871

Date and Stamp

PEER Consultants, p.c.
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Las Vegas, Nevada 89109

2.0 INTRODUCTION

2.1 INTRODUCTION

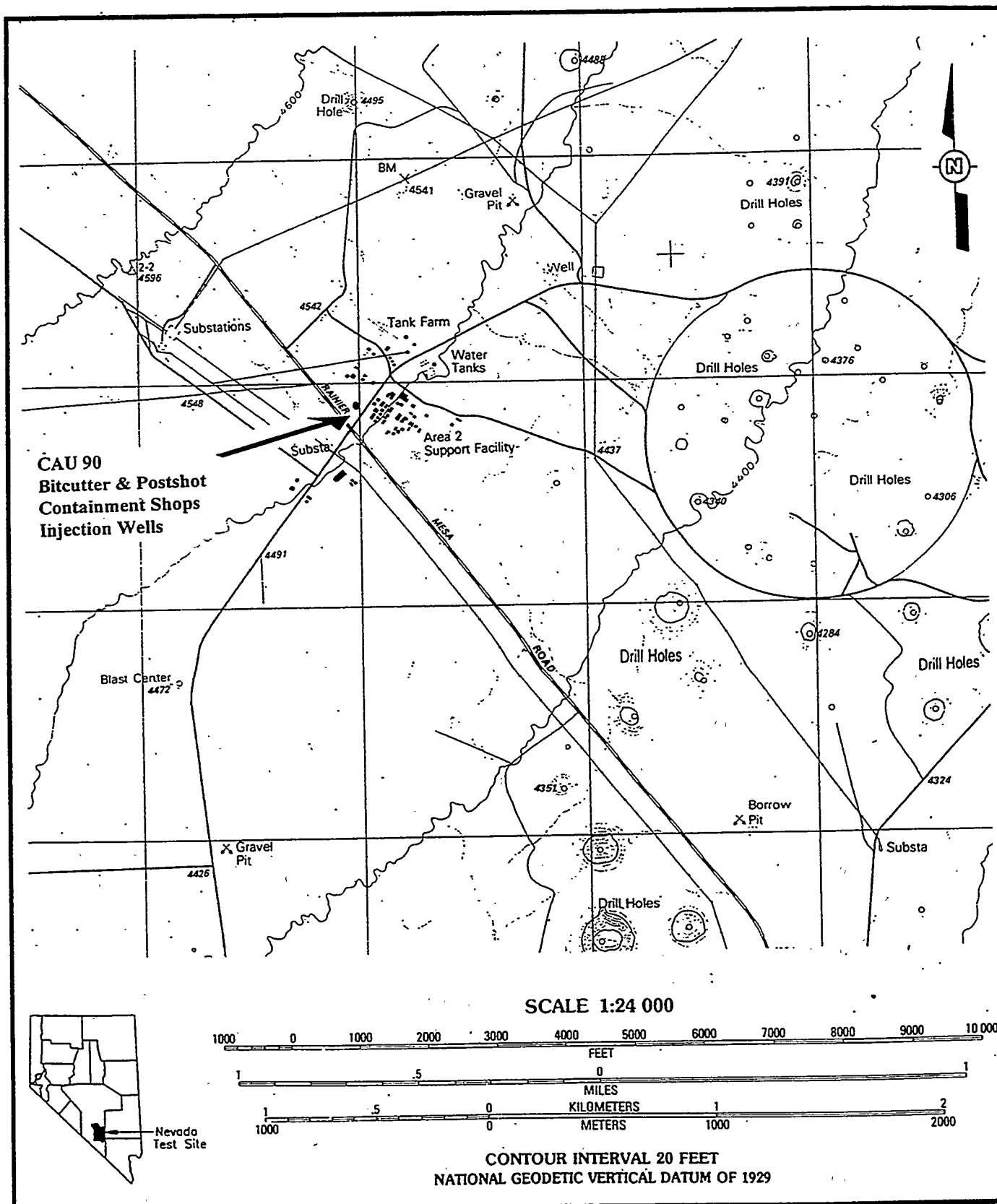
This Closure Report provides documentation of the activities conducted during the Resource Conservation and Recovery Act (RCRA) closure of the Bitcutter and Postshot Containment Shops Injection Wells located in Area 2 of the Nevada Test Site (NTS), Oak Spring Quadrangle (USGS, 1986), Township 10 South, Range 53 East, Nye County, Nevada (Figure 1). This unit is identified as Corrective Action Unit (CAU) 90 in the Federal Facilities Agreement and Consent Order (FFACO), Appendix III (U.S. DOE, 1996a). CAU 90 is subdivided into two Corrective Action Sites (CAS), CAS 02-20-1 and CAS 02-20-3. The following nomenclature has been assigned to the three sites that make up this unit:

- CAU 90-A: Bitcutter Shop Inside Injection Well (CAS 02-20-01);
- CAU 90-B: Bitcutter Shop Outside Injection Well (CAS 02-20-01); and
- CAU 90-C: Postshot Containment Shop Injection Well (CAS 02-20-03).

Preliminary closure activities began on July 22, 1996. Official closure of the two Bitcutter Shop wells was completed on September 24, 1996. Official closure of the Postshot Containment Shop Injection Well was completed on September 27, 1996.

The Certifications of Closure presented in Section 1.0 are signed by a Department of Energy/Nevada Operations Office (DOE/NV) authorized representative and an independent, registered professional engineer (PE). The certificates establish that the site was closed in accordance with the requirements of Title 40 Code of Federal Regulations (CFR) Part 265 Subpart G - Closure and Post-Closure, the approved Closure Plan (U.S. DOE, 1996b), and the NTS Hazardous Waste Management Permit issued in 1995 by the Nevada Division of Environmental Protection (NDEP). This Closure Report provides background information about the unit, the results of the characterization activities and actions conducted to determine the closure design. It also provides a discussion of the drainage analysis, preliminary closure activities, final closure activities, waste management activities, and the Post-Closure Care requirements.

As-built drawings are found in Appendix A. Copies of field logbook notes are found in Appendix B. Analytical data is presented in Appendix C. Waste manifests and related disposal documents are located in Appendix D. The drainage analysis is presented in Appendix E. Photographs of closure activities are located in Appendix F. Copies of the field inspector's Construction Activity Reports are in Appendix G. Results of grout and concrete laboratory tests are located in Appendix H. A copy of the Post-Closure Inspection Checklist is in Appendix I.



**FIGURE 1
SITE LOCATION**

Bechtel Nevada

SOURCE: United States Geological Survey,
Oak Spring Quadrangle, 7.5 minute Series, 1986

2.2 PURPOSE AND SCOPE

The purpose of this Closure Report is to document the RCRA closure of the Bitcutter and Postshot Containment Shops Injection Wells subject to the conditions of 40 CFR §265 Subpart G and 40 CFR §265.310 which pertain to closure and post-closure activities, as required by the Hazardous Waste Management Permit NEV HW009 (NDEP, 1995). The closure method was also completed according to the Nevada Administrative Code (NAC) 534 for well closures in Nevada and NAC 459.9973 pertaining to excessive petroleum in soils.

This report discusses the Bitcutter Shop Inside Injection Well (CAU 90-A) closure-in-place and the Bitcutter Shop Outside Injection Well (CAU 90-B) and Postshot Containment Shop Injection Well (CAU 90-C) clean closures.

2.3 SITE HISTORY

Two injection wells and one sump were used at the Area 2 Bitcutter and Postshot Containment Shops for disposal of fluids related to shop activities. One well and the sump are associated with the Bitcutter Shop and one well was used at the Postshot Containment Shop. Appendix A, "As-built Drawings," contains details and sections for the wells. Additional information can be found in the Resource Conservation and Recovery Act Industrial Site Environmental Restoration Site Characterization Report Bitcutter and Postshot Containment Shops Injection Wells (U.S. DOE, 1995).

The Bitcutter Shop Inside Injection Well (CAU 90-A) was constructed in 1981 and was located in the center of the floor of the building. It received water and solvents from drill bit and cutter washings from 1981 to approximately 1984. Wastes generated at the shop include RCRA listed solvents and hydrocarbon-based products. The fluids were dumped into the sump which drained into the injection well having a 51-centimeter (cm) [20-inch (in)] diameter steel casing extending to a depth of 14 meters (m) [47 feet (ft)] below ground surface (bgs). The sump measures 134 cm (53 in) in diameter and is 0.9 m (3 ft) deep.

During the field investigation of the Bitcutter Shop Outside Injection Well (CAU 90-B) it was determined that there was no associated well. The site consisted only a sump which was used to dispose of steam cleaning rinsate from the cleaning of drill bit rollers. A cleaning table inside the Bitcutter Shop drained to this outside sump. The sump consisted of a 1.7-m (5.5-ft) diameter steel casing that extended from the ground surface to a depth of 2.4 m (8 ft). The casing and visually impacted soils were removed and the excavation backfilled with clean soil during an investigation of the site which is discussed in Section 2.4.2.

The Postshot Containment Shop Injection Well (CAU 90-C) was used to dispose of steam cleaning rinsate and solvents used to clean drilling equipment. Wastes disposed of in the well include chlorinated solvents, grease, hydraulic oil, and motor oil (U.S. DOE, 1995). The site

consists of a 274-cm (108-in) diameter, 1.9-m (6.3-ft) deep sump installed in the building's concrete floor. A 25-cm (10-in) surface casing was used to direct the waste from the ground surface, i.e. the floor of the Postshot Shop, into the injection well. During the closure activities it was determined that the injection well consists of a 61-cm (24-in) diameter steel casing located in the center of the sump, extending from the floor of the sump to a depth of 10 m (33 ft) bgs. The 61-cm (24-in) diameter open borehole continues to a total depth of 13 m (44 ft) bgs. The 25-cm (10-in) surface casing was subsequently replaced during closure to facilitate sludge removal, as described in Section 4.2.3.2.

In February 1995, the Bitcutter and Postshot Containment Shop buildings were removed from their respective concrete slabs as part of the Demolition and Salvage of the Area 2 Camp. The concrete slabs were removed in April 1996.

2.4 CHARACTERIZATION ACTIVITIES

In order to determine the appropriate closure design criteria and perform a corrective action, information was needed regarding waste disposal history, well configuration, extent of impacted soils, etc. Documentation of these items was often incomplete or nonexistent, therefore it was necessary to complete a series of field investigations to fully characterize the site. The results of these activities are documented in the Characterization Report (U.S. DOE, 1995). All activities, both characterization and closure activities, have been summarized in Figure 2, "Schedule of Events." Characterization activities included:

- Video logging the Bitcutter Shop Inside Injection Well (CAU 90-A) to evaluate its condition;
- Investigating the Bitcutter Shop Outside Injection Well (CAU 90-B); and
- Partially removing and sampling the sludge in the Postshot Containment Shop Injection Well (CAU 90-C); and
- Conducting an subsurface investigation to determine the extent of impacted soils.

2.4.1 Bitcutter Shop Inside Injection Well Video Logging

The Bitcutter Shop Inside Injection Well was logged with a down-hole video camera on October 26, 1994. The well was determined to be dry. Evaluation determined the well casing to be in good condition and not perforated. The other wells were not video logged because the Postshot

FIGURE 2 - SCHEDULE OF EVENTS

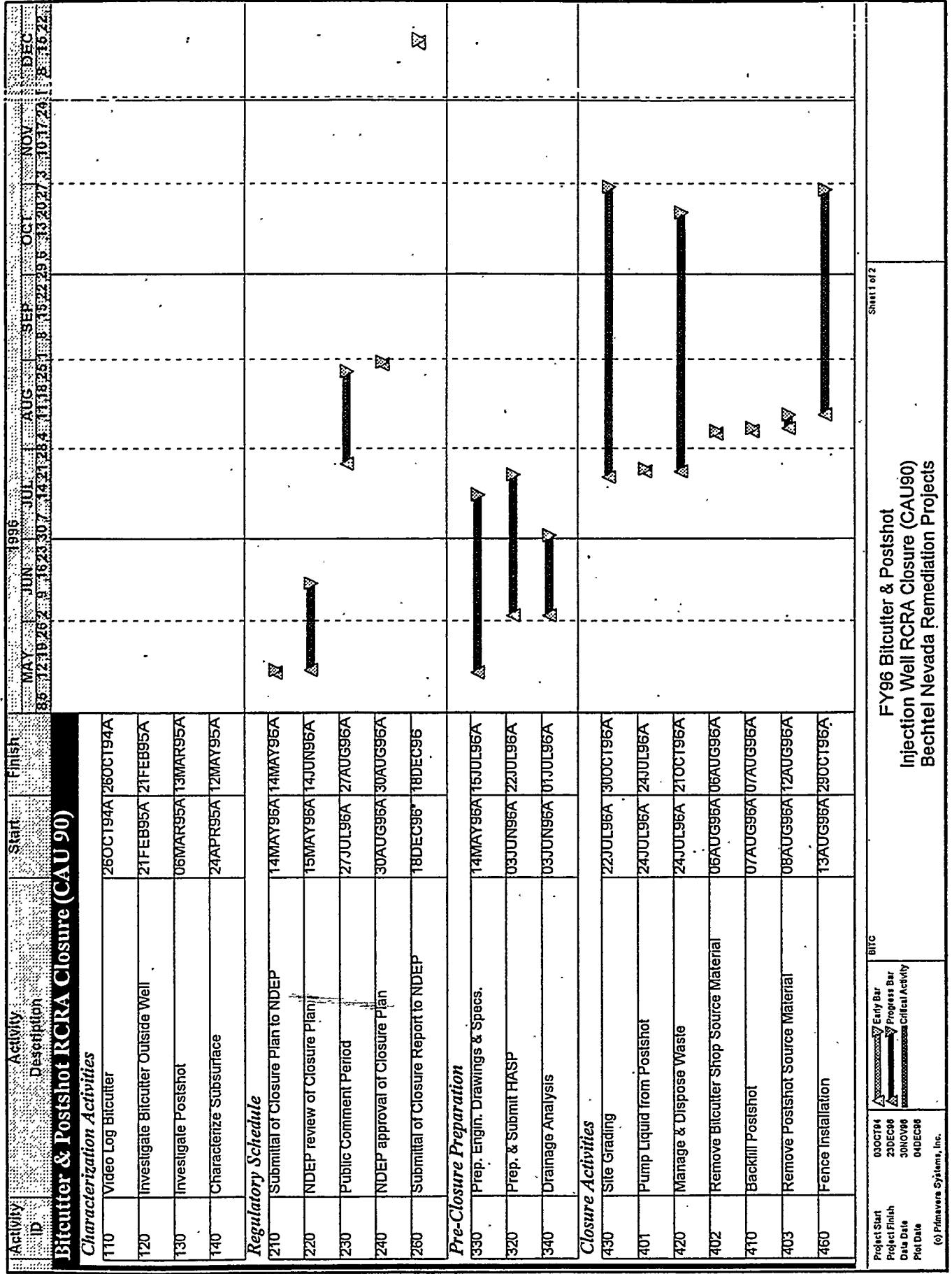
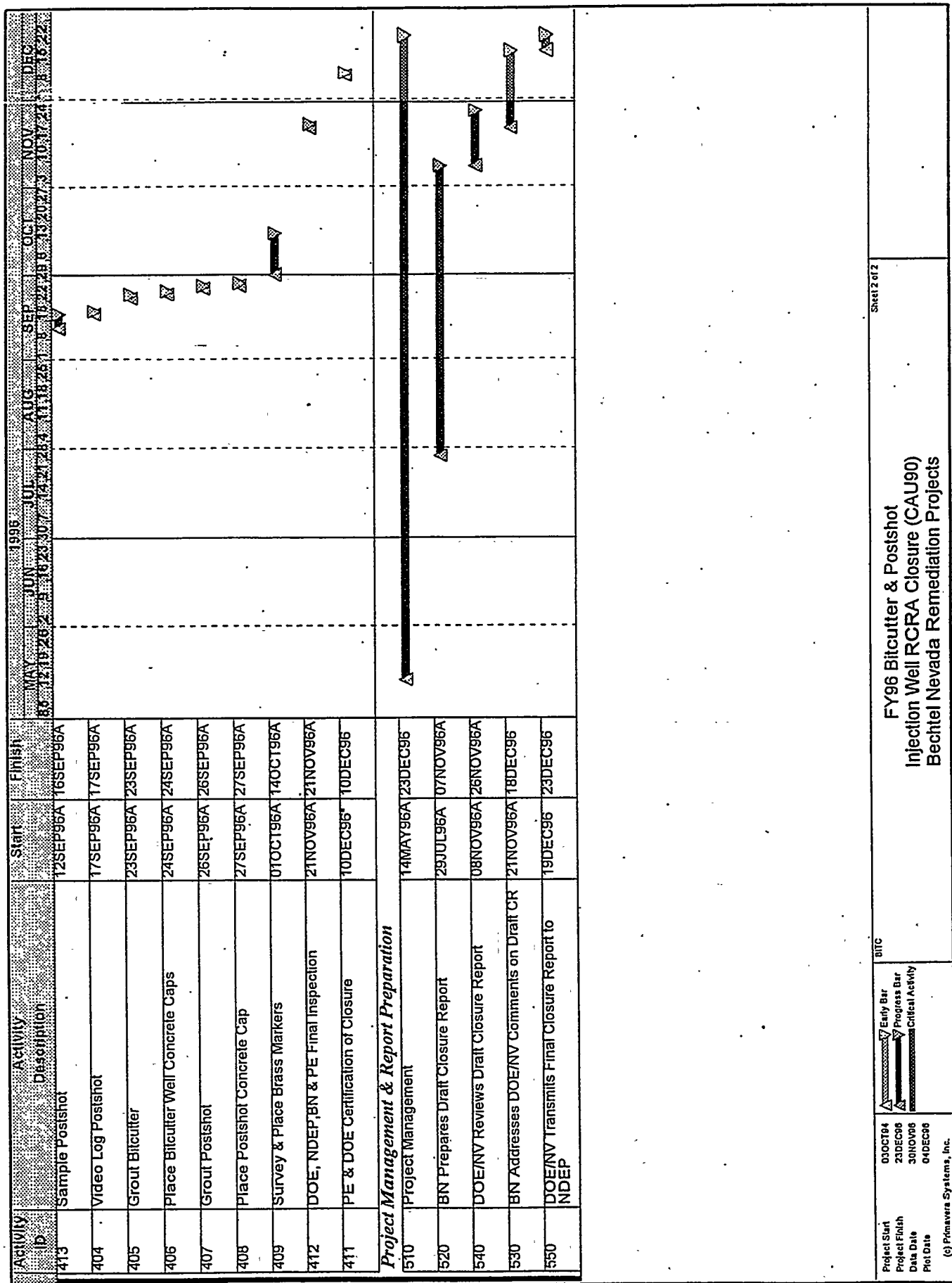


FIGURE 2 - SCHEDULE OF EVENTS (continued)



Containment Shop Injection Well contained liquid and sludge at the time of the logging and because the Bitcutter Shop Outside Injection Well was only 2.4 m 8 (ft) deep.

2.4.2 Bitcutter Shop Outside Injection Well Investigation

An investigation of the Bitcutter Shop Outside Injection Well was done on February 21, 1995. It was observed that the bottom of the sump was completely sealed with a steel plate which was welded to the bottom of the casing. The casing was removed with a backhoe to determine if there was an injection well beneath the casing. The investigation confirmed that a "well" was not associated with this site; however, for consistency with previous reports it is still referred to as the "outside injection well."

Approximately 10 cubic meters (m³) [13 cubic yards (yd³)] of soil were removed from the bottom and the sides of the excavation after the casing was removed. The soil was placed on plastic sheeting and the pile covered with plastic sheeting. The excavation was backfilled with clean, native soil. These activities are documented in Appendix B, "Field Logbook Notes."

On March 13, 1995, a composite sample, A2-B-PILE, was collected from three locations within the pile and submitted for laboratory analysis. The United States Environmental Protection Agency (U.S. EPA) laboratory test methods described in publication SW-846 was used for evaluating all solid waste (U.S. EPA, 1996). Volatile organic compounds (VOCs), semi-VOCs and petroleum hydrocarbons were not reported above the detection limits. One Toxicity Characteristic Leaching Procedure (TCLP) RCRA-regulated metal (barium) was detected at a concentration of 0.75 milligrams per liter (mg/L) which is below the RCRA-regulated limit for barium of 100 mg/L (see Table 1, "Summary of Analytical Data"). Copies of the analytical data reports received from the laboratory are found in Appendix C, "Analytical Data." The soil pile and the sump casing were removed from the site on October 3, 1995, and transported to the Area 9 U10c Sanitary Landfill for disposal.

The subsurface investigation discussed in Section 2.4.4 confirmed that the Total Petroleum Hydrocarbon (TPH) concentrations in the impacted soil were below the NDEP Action Level of 100 milligram per kilogram (mg/kg). No additional remedial activities were conducted at the site. The Bitcutter Shop Outside Injection Well (CAU 90-B) was clean closed.

2.4.3 Postshot Containment Shop Injection Well Investigation

Between March 6 and March 9, 1995, the Postshot Containment Shop Injection Well was investigated to determine actual well configuration and attempt to remove the source material from the casing. The sludge was removed by drilling through the sludge with solid-stem augers. The drill stem was pulled out of the well and any sludge adhering to the augers was placed in a 208-liter (L) [55-gallon (gal)] drum. Approximately 265 L (70 gal) of material were removed. Appendix B, "Field Logbook Notes," provides copies of the field logbook notes which document this activity.

TABLE 1 - SUMMARY OF ANALYTICAL DATA

SAMPLE NUMBER	SAMPLE DESCRIPTION (date sample collected)	TCLP VOCs ^a (mg/L)	TCLP semi- VOCs ^a (mg/L)	TCLP METALS ^c (mg/L)	TOTAL METALS ^d (mg/L)	TPH ^e (mg/L - liquid, ng/kg - soil or sludge)			
						Gas	Oil	Diesel	Total
BITCUTTER SHOP OUTSIDE INJECTION WELL									
A2-B-PILE	Soil removed from bottom and sides excavation after casing removal on February 21, 1995 (March 13, 1995)	ND	ND	Ba 0.75	NA	<1.0	<10	<10	<21
A2-B-RINSE	Rinse water generated February 21, 1995 (March 13, 1995)	ND	ND	Ba 0.12	NA	1.9	<0.1	3.5	5.4
BITCUTTER SHOP INSIDE INJECTION WELL									
A2-BIT	Sludge sample collected during source removal (August 6, 1996)	ND	NA	ND	NA	540	<6,400	<6,400	<173,340*
A2-BIT-RINSE	Rinse water generated August 6, 1996 (August 12, 1996)	Methylene Chloride (B) [†] 0.012 Acetone (B) [†] 0.046	NA	NA	Ba 0.404 Cd 0.077 Cr 0.208 Pb 1.140 Se 0.013	<0.1	<0.5	<0.5	<19.1**

TABLE 1 - SUMMARY OF ANALYTICAL DATA (continued)

SAMPLE NUMBER	SAMPLE DESCRIPTION (date sample collected)	TCLP VOCs ^A (mg/L)	TCLP semi- VOCs ^B (mg/L)	TCLP METALS ^C (mg/L)	TOTAL METALS ^D (mg/L)	TPH ^E (mg/L - liquid; mg/kg - soil or sludge)			
						Gas	Oil	Diesel	Total
POSTSHOT CONTAINMENT SHOP INJECTION WELL									
A2-P-1	Sludge sample from drum 1 of 2 (March 13, 1995)	ND	ND	Ba 0.66 Cd 0.025 Pb 5.0	NA	370	2,800	12,000	15,170
A2-P-2	Duplicate of A2-P-1 (March 13, 1995)	ND	ND	Ba 0.66 Cd 0.023 Pb 4.3	NA	530	2,100	11,000	13,630
A2-P-3	Sludge sample from drum 2 of 2 (March 13, 1995)	ND	ND	Ba 0.84 Cd 0.022 Pb 4.8	NA	590	3,300	18,000	21,890
A2-P-RINSE	Rinse water (March 13, 1995)	ND	ND	Ba 0.11	NA	0.15	18	83	101.15
592-602/603	Water pumped from sump on July 24, 1996 (July 31, 1996)	NA	NA	NA	As 0.0684 Cd 0.0357 Cr 0.0839 Pb 0.960	<0.1	<0.5	<0.5	<95.1***

TABLE 1 - SUMMARY OF ANALYTICAL DATA (continued)

SAMPLE NUMBER	SAMPLE DESCRIPTION (date sample collected)	TCLP VOCs ^A (mg/L)	TCLP semi- VOCs ^B (mg/L)	TCLP METALS ^C (mg/L)	TOTAL METALS ^D (mg/L)	TPH ^E (mg/L - liquid; mg/kg - soil or sludge)			
						Gas	Oil	Diesel	Total
A2-PS-RINSE	Rinse water (August 12, 1996)	NA	NA	NA	As 0.188 Ba 21.00 Cd 1.250 Cr 9.900 Pb 176.0 Hg 0.002 Se 0.019 Ag 0.028	2.9	12	<0.5	18.4****
A2-PS-55.5	Sample from 17 m (55.5 ft) bgs (September 16, 1996)	NA	NA	Ba 0.317 Cd 0.018 Pb 0.915	NA	3.5	1,500	<120	<1,620

^A U.S. EPA Method 8240

^B U.S. EPA Method 8270A

^C U.S. EPA Method 1311/6010 (Hg 1311/7470-1)

^D U.S. EPA Method 6010

^E U.S. EPA Method 8010 Modified

† Total VOCs

* An unknown hydrocarbon was detected at a concentration of approximately 160,000 mg/kg.

** An unknown hydrocarbon was detected at a concentration of approximately 18 mg/L.

*** An unknown hydrocarbon was detected at a concentration of approximately 94 mg/L.

**** An unknown hydrocarbon was detected at a concentration of approximately 3 mg/kg.

NA Not analyzed

B Detected in associated blank

ND Not detected above the contract required detection limit

[] TCLP RCRA Regulatory Limit (mg/L)

As Arsenic [5.0]

Ba Barium [100.0]

Cd Cadmium [1.0]

Cr Chromium [5.0]

Pb Lead [5.0]

Hg Mercury [0.2]

Se Selenium [1.0]

Ag Silver [5.0]

On March 13, 1995, one sample was collected from each of the drums containing sludge (sample numbers A2-P-1 and A2-P-3) using a 10-cm (4-in) diameter hand auger. A duplicate of sample A2-P-1, identified as A2-P-2, was also collected. Analytical results indicate TCLP lead concentrations ranging from 4.3 mg/L to the RCRA Regulatory Limit of 5.0 mg/L classifying the sludge as a hazardous waste with toxic characteristics (see Table 1, "Summary of Analytical Data"). The TPH concentrations, primarily in the diesel range, were above the NDEP Action Level of 100 mg/kg, ranging from 13,630 to 21,890 mg/kg. The analytical data associated with this sampling event are presented in Appendix C. On July 13, 1995, within three days of the hazardous determination, the drums were transported off-site for disposal. A copy of the on-site waste transport manifest, document number 95110, can be found in Appendix D, "Waste Disposal Documents."

2.4.4 Subsurface Characterization

In April and May 1995, a subsurface study of the unit was conducted. Four offset borings were drilled in the vicinity of the Bitcutter Shop Outside Injection Well to confirm the removal of impacted soil to concentrations below regulatory Action Levels. Seven offset borings and one incline boring were drilled around the Bitcutter Shop Inside Injection Well to define the lateral extent of the hydrocarbon plume. One incline boring and two offset borings were drilled in the vicinity of the Postshot Containment Shop Injection Well.

Conclusions reached in the Resource Conservation and Recovery Act Industrial Site Environmental Restoration Site Characterization Report Bitcutter and Postshot Containment Shops Injection Wells (U.S. DOE, 1995) include:

- The Bitcutter Shop Outside Injection Well has subsurface soils that contain minor amounts of TPH below the NDEP Action Level of 100 mg/kg;
- The Bitcutter Shop Inside Injection Well has a plume consisting primarily of petroleum hydrocarbons at concentrations exceeding the NDEP Action Level and low concentrations of RCRA-regulated VOCs; and
- The Postshot Containment Shop Injection Well has petroleum hydrocarbon impacted soils very limited in lateral extent and below the NDEP Action Level (U.S. DOE, 1995).

The TPH analytical data obtained from the samples collected around the Bitcutter Shop Inside Injection Well were used to define the vertical and horizontal extent of impacted subsurface soil and to develop a three-dimensional model of the plume using the computer modeling program SURFER. It is estimated that the uppermost boundary of the plume is located at about 12 m (40 ft) bgs and the lowermost surface is located approximately 26 m (87 ft) bgs. The highest TPH concentrations are located in a zone approximately 17 to 20 m (55 ft to 65 ft) bgs. The horizontal cross-sectional area of the plume was calculated to be approximately 186 square meters (2,000 square feet). The total volume of the plume was estimated to be 512 m³ (18,000 ft³).

3.0 DRAINAGE ANALYSIS

3.1 INTRODUCTION

The RCRA regulations, Title 40 CFR §264.310, require that a flood assessment be done to determine if engineering controls are needed in the closure design to protect the waste unit from erosion during flooding events. United States Geological Survey (USGS) topographic map Oak Spring, 7.5 minute quadrangle was used to assess the drainage basin that would impact the site (USGS, 1986). The drainage basin was subdivided based on flow lines and elevation information obtained by creating a digital terrain model of the topographic maps. By creating a three dimensional surface model, cross sections of the flow channel could be plotted and channel cross section elements could be measured and calculated.

A limited study of the surface water drainage pattern was conducted based on a 25-year, 24-hour storm event. A copy of the study can be found in Appendix E, "Drainage Analysis." Channel top widths were based on channel flow characteristics previously encountered in a similar analysis conducted in Area 5 of the NTS. The TR-55 Tabular Hydrograph method was used to determine an approximate peak discharge that could impact the site (Clark County, 1990).

3.2 RESULTS

The calculated approximate peak discharge that would impact the unit is 218 cubic meters per second (7,700 cubic feet per second) in a natural channel with a calculated top width of 103 m (337 ft). The calculated depth of flow is 0.76 m (2.5 ft) with a velocity of 2.8 meters per second (9.0 feet per second).

It is estimated that at this discharge velocity the depth of scour would be approximately 1.9 m (6 ft). Because the wells are plugged to depths of 15 m (49 ft) and 17 m (55.5 ft) bgs it is very unlikely that during a 25-year, 24-hour storm event any impacted soil would be washed out nor would it impact surface waters.

3.3 DESIGN CRITERIA

The results of the analysis indicate that no specific engineering controls are required to protect the unit from a 25-year, 24-hour storm event. However, several preventative measures were taken to promote drainage away from the unit, minimize erosion, and prevent infiltration and abrasion of the covers.

- The terrain within the vicinity of the unit is graded to direct flood waters around the unit.
- The concrete covers have a one-percent slope away from the center to prevent the possibility of ponding.
- The tops of the concrete covers are constructed so that the tops are elevated approximately 30.5 cm (12 in) above the ground surface except for the Bitcutter Shop Outside Injection Well pad which is 15 cm (6 in) above ground surface.
- Gravel was placed around the concrete covers to promote drainage away from the wells.

4.0 CLOSURE ACTIVITIES

4.1 CLOSURE DESIGN

The closure design was based primarily on the information presented in the following documents:

- Resource Conservation and Recovery Act Industrial Site Environmental Restoration Closure Plan, Area 2 Bitcutter and Postshot Containment Shops Injection Wells, May, 1996 (U.S. DOE, 1996b); and
- Resource Conservation and Recovery Act Industrial Site Environmental Restoration Site Abbreviated Corrective Measure Study, Area 2 Bitcutter and Postshot Containment Shops Injection Wells, (U.S. DOE, 1996c).

The Closure Plan was prepared and submitted to the NDEP for concurrence and approval on May 15, 1996. The preferred closure method was determined to be a closure-in-place of the Bitcutter Shop Inside Injection Well plume. The soil associated with the Bitcutter Shop Outside Injection Well and Postshot Containment Shop Injection Well are not considered to be impacted outside of the casings and are clean closures.

To support the closure-in-place option for the Bitcutter Shop Inside Injection Well plume, a risk assessment, commonly referred to as an "A through K", was done according to the requirements of NAC 459.9973, Action by Division When Excessive Petroleum is Present in Soil. This assessment considers factors such as depth to groundwater, annual precipitation, extent of contamination, potential land use, etc. The results of the study indicate that the impacted subsurface soil does not present a significant risk to human health or to the environment under current or potential future land use scenarios.

The preferred method of closure for the Bitcutter and Postshot Containment Shop Injection Wells was determined to be:

- Preparing engineering drawings to detail closure design specifications which will be modified, if necessary, to reflect field conditions (Appendix A, "As-built Drawings").
- Removing remaining source material from the two wells. Managing this material and any other waste that is generated according to NTS Waste Management criteria (REECo, 1995), NTS Standard Operating Procedures (SOP), and applicable federal and state regulations.
- Plugging the Bitcutter and Postshot Containment Shop Injection Wells with an inert inorganic substance, i.e. grout, from the total depth to the ground surface in accordance with

NAC 534.421 Plugging: Wells for Purposes Other Than Water Wells, which includes requirements for wells that do not penetrate the aquifer. A shrinkage compensating concrete grout is to be formulated as specified in NAC 534.070. The grout is to be placed in the well by tremmie pipe or by free-fall pouring.

- Placing concrete covers over the units to prevent infiltration of precipitation and surface water near the wells. The covers are to extend no less than 30 cm (12 in) above the uppermost portion of the well. Concrete placement is to conform to the requirements of the NTS Standard Construction Specifications (RSN, 1994a). Brass survey markers are to be attached to each cover with the name of the waste unit, elevation and location of the unit stamped in the surface.
- Erecting security fencing around the unit. The Bitcutter Shop Inside Injection Well is to be enclosed with a chain link fence complete with locking gate and at least one warning sign posted on each side.
- Preparing a survey plat that indicates the location and dimensions of the injection wells and the estimated location of the plume associated with the Bitcutter Shop Inside Injection Well with respect to permanent survey markers. The plat is to be submitted with the closure certification and report. It is to be prepared, annotated, and certified by a surveyor registered in the state of Nevada in accordance with Title 40 CFR §265.116.

4.2 PRELIMINARY CLOSURE ACTIVITIES

Several preliminary activities were completed prior to the final closure. All closure activities are summarized in Figure 2, "Schedule of Events," and are documented in Appendices B, F, and G which are the "Field Logbook Notes," "Closure Activity Photographs," and the field inspector's "Construction Activity Reports," respectively. Preliminary activities included:

- Preparing the drainage analysis report and engineering design drawings;
- Removing and sampling the Bitcutter Shop Inside Injection Well source material;
- Cleaning out the Postshot Containment Shop Injection Well sump, modifying the surface casing, and backfilling with concrete; and
- Removing the Postshot Containment Shop Injection Well source material.

The field inspector documented daily construction activities and verified that all items were completed according to the closure drawing specifications. The independent PE used these reports, in conjunction with other closure documents, to verify that unit has been closed in accordance with the Closure Plan (U.S. DOE, 1996b).

4.2.1 Document Preparation

Several documents were prepared prior to the start of field activities.

- An Environment Safety and Health Checklist for Remediation Projects was completed. This checklist provides an overview of a broad range of issues typically seen at a site.
- A Site Specific Health and Safety Plan was prepared and approved. An addendum was added to supplement the plan to cover welding activities required for modifications to the Postshot surface casing.
- A Categorical Exclusion was approved on June 28, 1996, indicates that the proposed action will not affect any environmentally sensitive resources including cultural and historical resources, threatened or endangered species, critical habitats, floodplain or wetlands, special sources of water, or prime agricultural land, and that the proposed activity will not violate any statutory, regulatory, or permit requirements.
- A drainage analysis (Appendix E) was done to determine if engineering controls were needed in the closure design to protect the waste unit from erosion during flooding events.
- Engineering drawings (Appendix A) were completed to detail closure design specifications.

4.2.2 Bitcutter Shop Inside Injection Well Preliminary Closure Activities

4.2.2.1 Source Material Removal and Sampling

On August 6, 1986, removal of the Bitcutter Shop Inside Injection Well source material began. This was accomplished by using a drill rig equipped with a 36-cm (14-in) auger bit which was lowered into the sludge, then pulled out of the hole. Any sludge adhering to the augers was scraped off and placed in a 208-L (55-gal) drum which was used to contain the material. Plastic sheeting was placed beneath the drill rig, around the well, and under the drums while the sludge was being removed to prevent an inadvertent release to the environment.

The depth to the top of the hydrocarbon-based sludge was 13 m (44 ft) bgs. At 14 m (47 ft) bgs, a brown, coarse-grained sand was encountered indicating the bottom of the well casing. The sand was not visually impacted by the sludge; however, there were obvious hydrocarbon odors. The bottom and sides of the well were cleaned out to a total depth of 15 m (49.5 ft). A total of approximately 378 L (100 gal) of impacted material were removed.

Volatile organic compound concentrations were continuously monitored during source removal activities using a MSA Model 360 photoionizing detector. Instrument readings ranged from 523 parts per million (ppm) at a point one inch from the surface of the sludge to approximately 70 ppm at a distance of about 15 cm (6 in).

Because trace concentrations of RCRA-regulated solvents were detected in the soil samples collected during the subsurface characterization, the sludge was handled as a hazardous waste. The drums were removed from the site on August 8, 1996, which was within three days of their generation, as required by RCRA.

The first material removed from the well was sampled to determine if the concentrations of the Constituents of Concern (COCs) exceeded the Land Disposal Restrictions (LDR) requirements. The sample, A2-BIT, was analyzed for VOCs, TCLP metals, TPH, flashpoint, and gamma activity (see Table 1, "Summary of Analytical Data"). Volatile organic compounds were not detected. Several TCLP metals (barium, cadmium, chromium and lead) were detected but the concentrations were below RCRA Regulatory Limits. The concentration of TPH as gasoline was 540 mg/kg and an unknown hydrocarbon was detected at 160,000 mg/kg. It was also determined that the sludge was not ignitable and contained no radiological activity above natural background. It was concluded that the concentrations of COCs were below the LDR standards. The analytical data for this sampling event are found in Appendix C. Waste disposal documents are found in Appendix D, "Waste Disposal Documents."

A procedure for decontaminating the drill stem and all related equipment is required by Title 40 CFR §265.112. Loose material was first removed and then a high-pressure steam cleaner was used to complete the process. Approximately 95 L (25 gal) of rinse water were generated. A sample of the water, identified as A2-BIT-RINSE, was collected on August 12, 1996, and analyzed for total VOCs, TPH, and total metals. Methylene chloride and acetone were the only VOCs detected and their presence is attributed to laboratory contamination. Several metals were detected at concentrations well below regulatory limits. No TPH constituents were detected. This liquid was disposed of in the Area 6 Sanitary Sewer System.

4.2.3 Postshot Containment Shop Injection Well Preliminary Closure Activities

4.2.3.1 Sump Clean Out

On July 24, 1996, approximately 300 L (80 gal) of stagnant liquid were pumped from the Postshot Containment Shop Injection Well sump. The liquid originated from melted snow which entered the sump in the winter of 1994. The sump was covered with plastic sheeting after this occurred to prevent further entry of water.

A composite sample of the liquid was collected on July 31, 1996. The sample, identified as 592-602/603, was analyzed for TPH and total metals, which were the two COCs detected in the Postshot Containment Shop Injection Well sludge samples collected on March 13, 1995 (see Table 2, "Summary of Analytical Data"). Petroleum hydrocarbons were not detected. Several metals were detected (arsenic, cadmium, chromium, and lead) at concentrations below regulatory Action Levels. The analytical results indicate the liquid was nonhazardous.

4.2.3.2 Surface Casing Removal and Sump Backfill

When the Postshot Containment Shop Injection Well was in operation, a 25-cm (10-in) diameter surface casing, located in the center of the sump, extended from the ground surface (i.e. the floor of the building) to the floor of the sump and was used to direct waste into the injection well. This 25-cm (10-in) casing was removed on August 6, 1996, and replaced with a 61-cm (24-in) surface casing to match the diameter of the injection well casing which allowed the drill rig augers access to the well. See Appendix A, "As-built Drawings," for well configuration.

The space between the newly installed 61-cm (24-in) diameter surface casing and the 274-cm (108-in) diameter sump casing was filled with 9.9 m³ (13 yd³) of concrete on August 7, 1996. The task was completed so that a drill rig could be safely positioned directly over the well without a large void area beneath it.

Field inspectors were on-site to collect samples of the concrete to verify that the material met the compressive strength specification of 210 kilograms per square centimeter (kg/cm²) [3,000 pounds per square inch (psi)] in 28 days. The average compressive strength at seven and 28 days was 193 kg/cm² (2,750 psi) and 318 kg/cm² (4,525 psi), respectively, which meets the required specification. Copies of all compressive strength tests reports are included in Appendix H, "Concrete and Grout Testing Reports."

Samples of the concrete and grout were collected each time one of these materials were placed in a unit. After an allotted time period had elapsed, a compressive strength test was done on each sample according to the American Society for Testing and Materials (ASTM) Standard C39-94, Test Method for Compressive Strength of Cylindrical Concrete Specimens (ASTM, 1995a). The cylindrical sample was placed in a compression device and pressure was applied until the sample failed, i.e. broke. The total load and cross-sectional area of the sample was used to calculate the compressive strength of that particular cylinder. Concrete samples were generally tested at seven and 28 days after they were collected. Grout samples were broken at seven, 14, and 28 days. All tests, both concrete and grout, met the required specification.

4.2.3.3 Source Material Removal

Analytical results from the sludge samples collected on March 13, 1995, indicate TPH concentrations exceeding the NDEP Action Level of 100 mg/kg and TCLP lead concentrations at the regulatory limit of 5.0 mg/L. Based on these results the sludge removed from the Postshot Containment Shop Injection Well was handled as a RCRA-regulated hazardous waste with toxic characteristics. All drums containing sludge were removed from the site within three days of generation as required by RCRA.

Removal of the material from the Postshot Containment Shop Injection Well began on August 8, 1996, and was completed August 12, 1996. Water was encountered at 7.2 m (23.5 ft) bgs. Approximately 37.9 L (10 gal) of water were removed using a drill rig equipped with a bailer

device. After as much water was removed as possible, the bailer was replaced with a 36-cm (14-in) auger bit was attached to the drill stem. A very thick, black, hydrocarbon-based sludge was present to a depth of 13 m (41 ft) bgs at which point the top of the sand pack was encountered. At 13 m (44 ft) bgs a very hard soil horizon was encountered and the auger bit was broken. It was replaced with a 46-cm (18-in) diameter auger bit and the well was cleaned to a total depth of 14 m (47 ft) to remove all possible source material. Approximately 1,325 L (350 gal) of sludge were removed from the Postshot Containment Shop Injection Well. The seven drums containing the sludge were transported to the Area 5 Hazardous Waste Storage Pad on August 8 and 13, 1996, prior to off-site disposal. Copies of the on-site waste manifests are located in Appendix D.

The drill rig augers and all related equipment that was potentially impacted were decontaminated with a high pressure steam cleaner. Approximately 246 L (65 gal) of rinse water were generated and placed in two 208 L (55 gal) drums. A composite sample, A2-PS-RINSE, was collected from the drums on August 12, 1996, and analyzed for TPH and total metals (Table 1, "Summary of Analytical Data"). The concentration of TPH as gas and oil were 2.9 and 12 mg/L, respectively. A diesel component was not detected. Metals were detected; however, total lead, with a concentration of 176 mg/L, was the only one to exceed regulatory limits. The drums were removed from the site on October 2, 1996, and transported to the Area 5 Hazardous Waste Storage Pad prior to off-site disposal.

All personal protective equipment (PPE) and plastic generated during this activity were placed in three 208 L (55 gal) drums. Material placed in the drums was not significantly impacted by the sludge and was considered nonhazardous. The drums were removed from the site on October 21, 1996, and disposed of at the Area 9 U10c Sanitary Landfill.

4.2.3.4 Sample Collection

To support the clean closure design, a sample of the material below the bottom of the 61-cm (24-in) borehole was collected to determine if a significant decrease in the concentrations of COCs had occurred. On September 12, 1996, a mobile rig equipped with 16.5-cm (6.5-in) diameter hollow-stem augers and a 0.6-m (2-ft) long core barrel was brought to the site. Auger drilling began at 13.4 m (44 ft), the total depth of the 61 cm (24 in) borehole. At 14.9 m (49 ft) bgs the core barrel was dropped down the hole for sample collection and inspection. Inspection of the subsurface was done in continuous 0.6 m (2 ft) intervals from 15 m (49 ft) to 17 m (55 ft) bgs. Cores retrieved from the hole consisted of black, hydrocarbon-impacted sludge and some sand. Refusal of the core barrel was met at 16.9 m (55.5 ft) bgs. A sample could not be collected from the core barrel; therefore, the drill stem was brought up and a sand sample, A2-PS-55.5, was collected from the exterior of the auger flights.

The sample was analyzed for TPH and RCRA-regulated metals. Results indicate TCLP lead concentrations had decreased to 0.915 mg/L. The TPH as oil concentration was 1,500 mg/kg which is above the regulatory limit but shows a significant decrease when compared to the TPH

concentration of the samples collected March 13, 1996 (see Table 1, "Summary of Analytical Data"). The laboratory data is found in Appendix C.

One additional drum of solid waste was generated consisting primarily of plastic with some sludge and PPE. The drum contents were assumed to be hazardous because it was significantly impacted during the sampling activities. It was transported to the Area 5 Hazardous Waste Storage Pad on September 19, 1996, prior to shipment off-site for disposal.

An additional 230 L (60 gal) of rinse water were generated during the decontamination of the drill rig core barrel and other potentially impacted equipment. The water was handled as a RCRA-regulated hazardous waste containing elevated concentrations of total lead based on the analytical data results for sample A2-PS-RINSE. All four drums of rinse water related to the Postshot Containment Shop Injection Well closure activities were removed from the site on October 2, 1996, and transported to the Area 5 Hazardous Waste Storage Pad prior to off-site disposal.

4.2.3.5 Video Logging

Video logging of the Postshot Containment Shop Injection Well was done on September 17, 1996 to determine the success of the sludge removal activity. (Video logging of the Bitcutter Shop casing was done in 1994.) The video verified that the bottom of the 61-cm (24-in) casing extended to a depth of 10 m (33 ft) bgs with open borehole extending to 13 m (44 ft) bgs. At this point the video camera was lowered into the 17-cm (6.5-in) borehole which extended to the total depth of 17 m (55.5 ft) bgs. The walls of the open borehole consisted primarily of brown sand, spotted with minor amounts of black sludge. It appeared that the majority of sludge had been removed. The walls of the open borehole looked solid with no evidence of slumping or caving.

4.3 FINAL CLOSURE ACTIVITIES

Drawings showing the final design details are found in Appendix A. The following activities were conducted in addition to those previously discussed.

4.3.1 Well Plugging

The Bitcutter Shop Inside Injection Well and the Postshot Containment Shop Injection Well were plugged in accordance with the requirements of NAC Chapter 534, Underground Water and Wells, most specifically NAC 534.421, Plugging: Wells for Purposes Other Than Water Wells, which includes requirements for wells that do not penetrate the aquifer. The wells were plugged using a shrinkage-compensating dipole hail high strength groutcrete formulated as specified in NAC 534.070. The grout was placed by free-fall pouring from the wells' total depth to ground surface.

The Bitcutter Shop Inside Injection Well was plugged on September 23, 1996. Approximately 4.6 m³ (6 yd³) of grout were required to fill the hole from the total depth of 15 m (49.5 ft) to slightly below ground surface. Closure of the Postshot Containment Shop Injection Well was approved September 26, 1996, with grouting of the well taking place the same day. A total of 4.6 m³ (6 yd³) of grout were required to fill the hole from the total depth of 17 m (55.5 ft) to the ground surface.

The field inspector collected samples of the grout during both plugging events. A compressive strength of 210 kg/cm² (3,000 psi) in 28 days was required. The average compressive strength of the samples collected from the grout placed in the Bitcutter Shop Inside Injection Well was 457.4 kg/cm² (6,505 psi), 501.7 kg/cm² (7,135 psi), and 517.8 kg/cm² (7,365 psi) at seven, 14, and 28 days, respectively. The average compressive strength of the samples collected from the grout placed in the Postshot Containment Shop Injection Well was 587.8 kg/cm² (8,360 psi), 585.7 kg/cm² (8,330 psi), and 621.5 kg/cm² (8,825 psi) at seven, 14, and 28 days, respectively. All results are within the required specification.

The grout was visually inspected prior to placement of the concrete covers. No shrinkage of the grout was apparent. Expansion bar grout samples were collected to determine the degree of shrinkage using ATSM Standard C157-93, Test Method for Length Change of Hardened Hydraulic Cement Mortars and Concrete (ASTM, 1995b). Results of the test indicate a shrinkage of 0.078 percent in 38 days for the Bitcutter Shop Inside Injection Well grout and 0.040 percent shrinkage for the Postshot Containment Shop Injection Well grout. Copies of the compressive strength and shrinkage tests results are presented in Appendix H.

4.3.2 Final Cover

Concrete covers were placed over the Bitcutter Shop Inside Injection Well and the Postshot Containment Shop Injection Well in accordance with the requirements of Title 40 CFR §265.310 to prevent infiltration of precipitation and surface water. The covers are 30.5-cm (12-in) thick with a one percent slope to promote runoff. The Postshot Containment Shop Injection Well cover is 6-m (19.7-ft) square and the Bitcutter Shop Inside Injection Well cover measures 3 m (9.8 ft) square. Both covers are constructed with steel reinforcing welded wire mesh. Control joints were cut in the pads and filled with silicone sealant. The Bitcutter Shop Inside Injection Well required 3.4 m³ (4.5 yd³) of concrete to complete the cover and 13 m³ (17 yd³) of concrete were required to complete the Postshot Containment Shop Injection Well cover. A 1.2-m (4-ft) square, 15-cm (6-in) thick cover was placed over the Bitcutter Shop Outside Injection Well to mark its location.

Covers for the two Bitcutter Shop wells were completed on September 24, 1996. The cover over the Postshot Containment Shop Injection Well was placed on September 27, 1996. The three caps were surveyed on October 1, 1996, and brass markers were placed on each cover with the appropriate unit name, location, and elevation stamped on the surface. The markers were replaced on October 14, 1996, with ones that were more legible.

The field inspector collected samples of the concrete used to construct the covers to verify that material meets the 210 kg/cm² (3,000 psi) ASTM compressive strength Standard C39-94. The average compressive strength of the samples collected from the concrete placed in the Bitcutter Shop Inside Injection Well was 221.1 kg/cm² (3,145 psi) and 290.7 kg/cm² (4,135 psi) at seven and 28 days, respectively. The average compressive strength of the samples collected from the concrete placed in the Postshot Containment Shop Injection Well was 194.1 kg/cm² (2,760 psi) and 290.4 kg/cm² (4,130 psi) at six and 27 days, respectively. All results met the required specification (see Appendix H; "Concrete and Grout Testing Results").

4.3.3 Site Grading

Much of the grading in the vicinity of the unit was done prior to installation of the covers for run-off and run-on control as required by 40 CFR §265.112(b)(5) and §265.310. The surrounding terrain was contoured to minimize erosion and divert runoff away from the unit in accordance with the Appendix E, "Drainage Analysis." After cap completion, approximately 8 cm (3 in) of gravel were placed inside the fenced area.

4.3.4 Site Security and Signs

Title 40 CFR §265.14 requires measures be taken to prevent unknowing entry and minimize unauthorized entry onto the facility. A 2.4-m (8-ft) high chain link security fence was installed around the Bitcutter Shop Injection Wells and another was erected around the Postshot Containment Shop Injection Well. Each fence was equipped with a 1.2-m (4-ft) wide personnel gate. A warning sign is located on all four sides of each fenced compound. The signs carry the legend "Danger - Unauthorized Personnel Keep Out Resource Conservation and Recovery Act Waste Unit CAU 90 Contact Bechtel Nevada Remediation Projects for Access 295-7946."

A three strand fence was installed between the two chain link compounds thereby fully enclosing the unit. The fence is 0.97 m (38 in) high and is equipped with a 4.4-m (14.3-ft) wide vehicle drop gate. Fences and gates were installed according to NTS Design Drawing Standards (RSN, 1994b).

4.3.5 As-built Drawings and Survey Plat

The engineering drawings created to detail design specifications were modified after closure completion to reflect actual well configuration and any modifications made to the original design. Any changes that were made were minor and do not effect the final closure. In addition, a survey plat, indicating the location of the waste units with respect to permanent survey benchmarks, was completed in accordance with Title 40 CFR §265.116 and §265.309. The plat was prepared and certified by a professional land surveyor registered in the state of Nevada, as required by §265.116. It indicates the estimated location and dimensions of the plume of impacted material associated with the Bitcutter Shop Inside Injection Well. A copy of this plat and other drawings are located in Appendix A.

A field inspection walk through was conducted on November 21, 1996. Representatives from DOE/NV, NDEP, Bechtel Nevada (BN), and the independent PE attended this final site inspection. All parties signed off on the final acceptance inspection report, indicating the closure was complete per the as-built drawings.

4.3.6 Changes Made to Closure Design

Changes to the design drawings that do not affect the closure plan do not require submittal to NDEP for approval. A chain link security fence was placed around the Postshot Containment Shop Injection Well in addition to the security fence around the Bitcutter Shop Inside Injection Well that was prescribed in the Closure Plan. Signs were placed on all four sides of each fenced compound for a total of eight signs. Gravel was placed within the entire fenced compound including the three strand fence area. These changes do not adversely effect the closure of the unit, rather, the gravel will promote drainage away from the unit and the additional fencing and signs increase security and reduce the possibility of tampering or damage to the units.

4.3.7 Post-Closure Care Requirements

A formal Post-Closure Care ground water monitoring program will not be conducted under Title 40 CFR §265.117 through 40 CFR §265.120 based on the Corrective Measures Study (U.S. DOE, 1996c), ground water evaluations conducted at Yucca Flats, and information provided in the Closure Plan, which indicate ground water monitoring is not necessary and will not be required. These requirements are presented in 40 CFR §265.90, §265.112(b)(5), §265.118(b), §265.310(b), and §270.14(c). A waiver of 40 CFR §265.310 ground water monitoring requirements is requested as described in 40 CFR §265.90(c).

Because the NTS is federally owned, notice of post-closure care will not be submitted to the local zoning authority as is required by 40 CFR §265.119 and 40 CFR §270.14 (b)(14). A post closure certification will not be submitted to the Regional Administer (40 CFR §265.120).

A Post-Closure Care program is proposed rather than formal monitoring. Post-closure care will consist of visual inspections done twice a year, every six months, to evaluate the condition of the unit, verify that the site is secure and the gates are locked, and note any subsidence or deficiencies that may compromise the integrity of the unit. Results of the inspections will be documented on the Post-Closure Inspection Checklist presented in Appendix I. The first inspection was done on December 18, 1996, one month after the final inspection was completed. Any deficiencies discovered by the inspector will be remedied within 60 days of discovery and included in the annual report. The report will be submitted by DOE/NV to the NDEP. It will include, at a minimum, an executive summary, copy of the inspection reports, and recommendations and conclusions. The unit will also be monitored monthly as part of the monthly Part A RCRA site inspections which are reported to DOE on a quarterly basis.

4.4 WASTE MANAGEMENT ACTIVITIES

4.4.1 Waste Inventory

Waste was managed according to the Nevada Test Site Performance Objective for Certification of Nonradioactive Hazardous Waste (REECo, 1995). Sanitary waste was managed according to NTS-SOP-5408, Environmental Protection and Regulatory Compliance. Hazardous waste was managed according to NTS-SOP-5409, Management of Hazardous Materials and Waste and DOE Order 5400.1 General Environmental Protection Program. Removal of waste and decontamination of equipment was done according to the requirements set forth in 40 CFR §265.112 and 40 CFR §265.114.

Waste streams were analyzed in accordance with Test Methods for Evaluating Solid Waste, Physical/Chemical Methods U. S. EPA Publication SW-846 as referenced in 40 CFR §260.11 (U.S. EPA, 1986). For a listing of all waste generated in association with the closure activities refer to Table 2, "Summary of Generated Waste." This table also describes quantities of waste in each container, and how and when the waste was disposed of.

4.4.1.1 Bitcutter Shop Inside Injection Well

The following is a list of the waste generated during the closure activities completed at the Bitcutter Shop Inside Injection Well:

- Two drums RCRA regulated hazardous waste sludge (380 L [100 gal]);
- One drum rinse water from equipment decontamination (95 L [25 gal]); and
- Two drums plastic sheeting and PPE.

4.4.1.2 Postshot Containment Shop Injection Well

The following is a list of the waste generated during the closure activities completed at the Postshot Containment Shop Injection Well:

- Two drums of liquid removed from the sump during clean out (300 L [80 gal]);
- Seven drums of RCRA-regulated hazardous waste sludge (1,330 L [350 gal]);
- Four drums of rinse water from equipment decontamination (473 L [125 gal]); and
- Four drums of plastic sheeting and PPE.

TABLE 2 - SUMMARY OF GENERATED WASTE

DATE OF GENERATION	DESCRIPTION	QUANTITY	DATE OF DISPOSAL	DISPOSITION
Bitcutter Shop Inside Injection Well Related Waste				
August 6, 1996	Sludge	380 liters (100 gal)	August 8, 1996	Offsite Hazardous Waste (containing VOCs)
August 6, 1996	Rinsate	95 liters (25 gal)	October 21, 1996	Area 6 Sanitary Sewer System
August 6, 1996 August 8, 1996	PPE/Plastic	420 liters (110 gal)	October 21, 1996	Area 9 U10c Sanitary Landfill
Postshot Containment Shop Injection Well Related Waste				
July 25, 1996	Sump liquid	300 liters (80 gal)	October 21, 1996	Area 6 Sanitary Sewer System
August 8, 1996 through August 12, 1996	Sludge	1330 liters (350 gal)	August 8 and 12, 1996	Offsite Hazardous Waste (containing lead)
August 12, 1996 and September 13, 1996	Rinsate	473 liters (125 gal)	October 2, 1996	Offsite Hazardous Waste (containing lead)
August 12, 1996	PPE/Plastic	624 liters (165 gal)	October 21, 1996	Area 9 U10c Sanitary Landfill
September 13, 1996 and September 16, 1996	Sludge/PPE/ Plastic	210 liters (55 gal)	September 19, 1996	Offsite Hazardous Waste (containing lead)

4.4.2 Waste Disposal

4.4.2.1 Bitcutter Shop Inside Injection Well

4.4.2.1.1 Hazardous Waste

The two drums of sludge removed from the Bitcutter Shop Inside Injection Well were handled as a RCRA-regulated hazardous waste based on analytical results of the borehole samples collected during the subsurface investigation (U.S. DOE, 1995). On August 8, 1996, a sample of the sludge was collected as it was removed from the well, as discussed in Section 4.2.2.1, to determine the concentrations of the COCs. Analytical results indicate that concentrations were below RCRA LDR restrictions.

On August 8, 1996, the drums were removed from the site and transported to the Area 5 Hazardous Waste Storage Pad prior to shipment off-site for final disposal. See Appendix D for copies of the waste disposal documents.

4.4.2.1.2 Nonhazardous Waste

Decontamination activities generated 95 L (25 gal) of rinse water associated with the Bitcutter Shop Inside Injection Well. Samples of the water were collected on August 12, 1996, and analyzed for TPH, VOCs, and RCRA regulated metals. No constituents of concern were detected above Regulatory Levels. On October 21, 1996, the drum was transported to Area 6 and the contents disposed of in the Sanitary Sewer System.

Most of the solid waste was not significantly impacted during the closure activities. Any plastic, PPE, etc. that was significantly impacted was segregated and placed in a drum containing sludge. The two drums of PPE and plastic related to Bitcutter Shop Inside Injection Well closure activities were removed from the site October 21, 1996, and disposed of in the Area 9 U10c Sanitary Landfill.

4.4.2.2 Postshot Containment Shop Injection Well

4.4.2.2.1 Hazardous Waste

Disposal of the sludge removed from the Postshot Containment Shop Injection Well was based on the analytical results of samples collected on March 13, 1995. The sludge has petroleum hydrocarbon concentrations considerably greater than the regulatory Action Level of 100 mg/kg and TCLP lead concentrations at the regulatory limit of 5 mg/L. Two drums of sludge were removed from the site on August 8, 1996, and the remaining five were removed September 13, 1996. All drums were transported to the Area 5 Hazardous Waste Storage Pad prior to shipment offsite for final disposal.

Decontamination of equipment generated at total of 473 L (125 gal) rinse water. On August 12, 1996, samples of the water were collected from the two drums of liquid generated after the sludge removal activity. They were analyzed for TPH and RCRA regulated metals. Analytical results indicated total lead concentrations exceeding regulatory limits as discussed in Section 4.2.3.3. All four drums of rinse water were transported to the Area 5 Hazardous Waste Storage Pad on October 2, 1996, prior to shipment offsite for final disposal.

One drum containing plastic and PPE was significantly impacted by the sludge during the sample collection phase. It was removed from the site as a hazardous waste on September 19, 1996, and transported to the Area 5 Hazardous Waste Storage Pad prior to shipment offsite for final disposal.

4.4.2.2.2 Nonhazardous Waste

Approximately 300 L (80 gal) of liquid was pumped from the Postshot Containment Shop sump prior to closure. The liquid was analyzed for TPH and RCRA regulated metals. No COCs were detected above the Action Levels (see Section 4.2.3.1). The drums were removed from the site on October 21, 1996, and the contents disposed of in the Area 6 Sanitary Sewer System.

Most of the solid waste was not significantly impacted during the sludge removal. Any plastic, PPE, etc. that was significantly impacted was segregated and placed in a drum containing sludge. The three drums of PPE and plastic related to Postshot Containment Shop Injection Well sludge removal activities were removed from the site October 21, 1996, and disposed of in the Area 9 U10c Sanitary Landfill.

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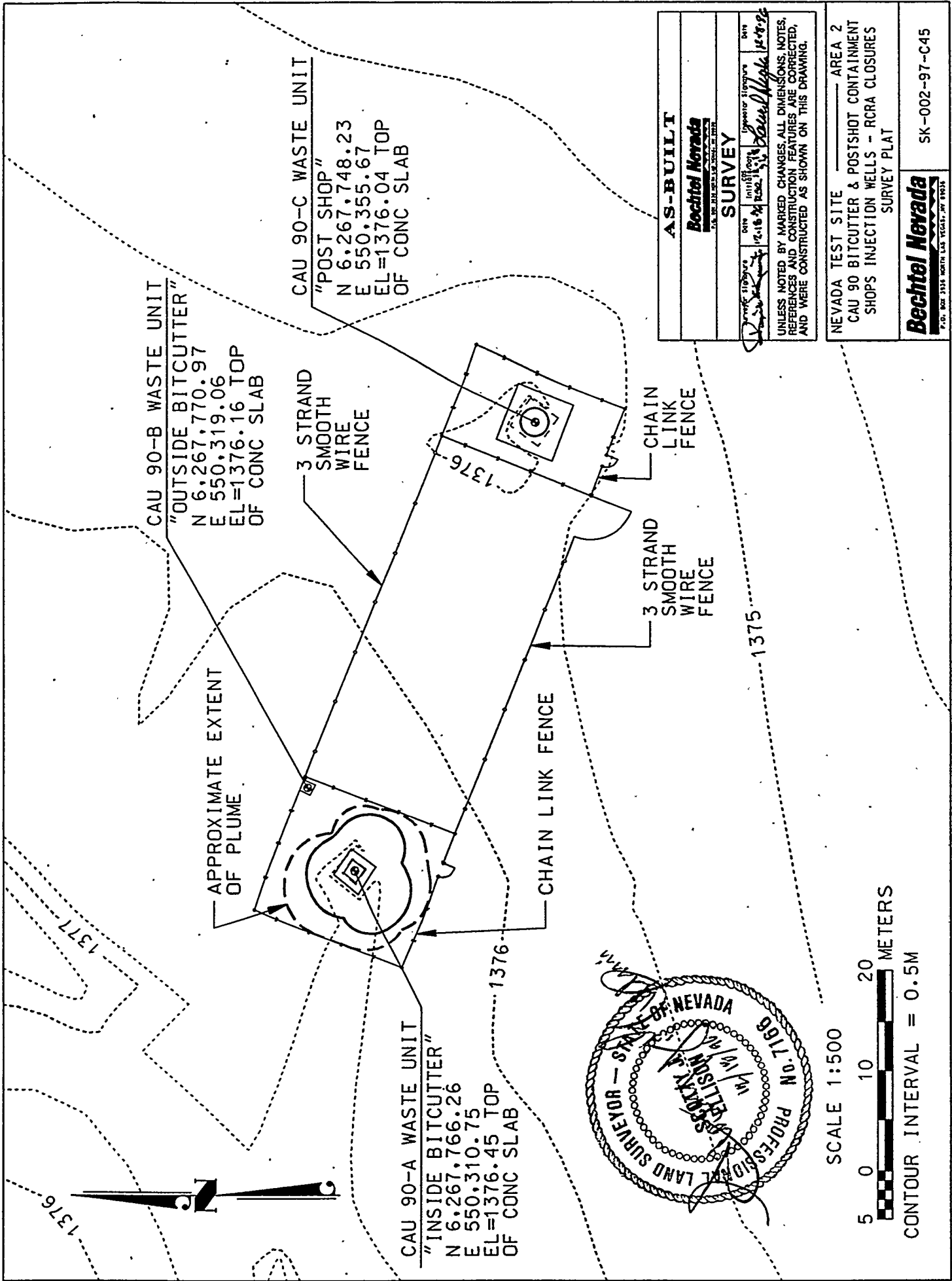
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APPENDIX A
AS-BUILT DRAWINGS



APPENDIX B

FIELD LOGBOOK NOTES

2-21-95 - Area 2 Bitcutters (cont.)

→ this afternoon.

1230 - Leave site to call Jeff Smith.

Inform him of project status.

1245 - Return to site. Backhoe has loose surface casing. Dean Mierau, NDEP on site.

Inquires about activities. I inform him.

He tells me he is in Area 2 to look at the diesel spill by the 2-07 road.

1300 - Remove surface casing. Clean out excavation. Encounter grey sludge material. Stop excavating. Request laborers to secure excavation with fencing, and operator to build berm around excavation.

1315 - Call Mike Hipstate, NTS Construction. Inform him of situation. He tells me he is sending the steam cleaner to the site to clean the backhoe bucket as he needs it for another job tomorrow.

1330 - Return to site. Request laborers to get an empty 55-gallon drum from the A-12 Gas Station. They leave site.

1400 - Hollow stem auger rig arrives at LLNL Post Shot Containment Facility. Drilling crew sets up over Sump.

Laborers return to site. They leave to get 20 mil plastic to cover soil pile.

1430 - Steam cleaner arrives on site. Brief-

2-21-95 - Area 2 Bitcutters.

Weather: Ptlly Cldy / Breezy / Cool-Warm 40s-70s.

0835 - Arrive on site.

0900 - S. Helleman, REECO ERTDD/ERS on site. Reviews site Health & Safety Plan.

0915 - Call Mike Lipstate on Net 15. He tells me he'll be on site shortly.

0930 - Mike Lipstate arrives on site. Goes over scope of work with NTS Construction, laborers Gene Noyes & Walter Seevers.

0945 - Mike Lipstate leaves site.

0950 - Gene Noyes leaves site to collect fence posts & markers.

1000 - Steve Helleman leaves site to pick up lunch.

1020 - NTS Const. Operator Jim Fisher arrives on site.

1030 - S. Helleman, Gene Noyes return to site. Brief workers on site Health & Safety Plan.

1100 - Begin excavating around sump (surface & inside).

1200 - 1230 - Lunch. Don Cox arrives on site. Asks about status of project, so that he can schedule sampling. I tell him it will probably be tomorrow afternoon. He leaves with Jeff Smith.

2-21-95 (cont.)

→ Tuesday Benshoof on site Health & Safety. Steam clean backhoe bucket. 10 gallons of rinseate generated

Brady #592-328

1500 - Laborers return to site. No 20mil plastic available. Cover soil pile with visquene. Finish fencing site. Earthen berm constructed around site. Drive backhoe to loading dock.

1530 - Leave site: laborers, Steam Clean Operator leave site.

~~Anthony~~ 1/25/95

RECEIVED

2-21-95

Area 2 LLM Post Site Injection Well Sludge Removal
Monday March 6, 1995

0815 Jeff Smith - ERS on-site

Weather: Sunny, clear, windy gusts to 30 mph, 50's

RCT - Fred Christopoulos

TH - R.T. Morgan (Elling)

Miller, Russell Skelton

Green, Cheryl

Lubans: Beverly Cady

Lean, Felix

James, Clemens

R.E. Brown

Sup: Mike Lipschitz

0900 had H+S / Tailgate meeting explained the drilling jobs to all personnel

0915 Called Angela on Oct 3 she is bring out tools + gloves

0930 Driller's setting up, cutting lining for annus and will cut a hole within the plywood and put it over lining to trap the contaminated material

1015 Sabine Curtis - DOE on-site

1030 bring crane ERS on-site to deliver Trench + gloves

1035 bring off-site

1050 Sabine Curtis - offsite to U-38c

1130 Completed lining around the building and gave final Safety briefing

[Signature]

2. Afternoon LNL Post Site Sludge Removal

1130 Break for Lunch

Popcorn work outline:

Have 15' of 9 inch solid stem augers
Will attach drill string to the solid stem auger
After drilling 15 feet will pull string out of the ground
The 15' string will be pulled out and the material into
the drum. They will monitor the breathing zone and find
the tool on material.
will continue same steps until all material out of the well

1200 Return for Lunch - Drillers setup over the hole

1230 Sabine Luthis - DOE back on-site

1245 Fred Luthis on drill rig and continue drilling

1255 Green Luthis - off-site to drilling to get a dog collar

1420 After drilling 15 feet, pulled out the 35 feet of drill pipe
was determined this point the control pin that attached the auger, snapped, and we had
lost the auger string down the hole. It appears that the 15' of auger
is in tight within the sludge.

1430 Sabine Luthis left the site. She was wondering what this would
cost.

1445 Everybody off the site except Gene (Luthis), Russell (driller), Barry (welder)
and myself. We are trying to fabricate a tool to hook up the two to the
Auger flights

1600 Fabricated an overcomp at site. Received word that they had one in Area 25
and would bring it to the site the next day. Decided to leave for the day



3/1/75

TITLE Area 2 LNL Post Site Sludge Removal

3754-042

3

Work card

0815 J. Smith ERS - on-site

Weather: Clear, Sunny, slight breeze, 50's to 60's

RCT/IT: Fred Christophides

Driller: Russell Sutton

been Cherry

Welder: Barry Canvey

Labors: Leon Felix

James Clemon

Ralph E. Hayes, Jr.

Fredy D. Greene

10

0840 had Twilight Safety meeting. Decided firms from drill rig a potential
hazard. Barry is looking to pipe exhaust out of the building

0850 Start Fishing operations

0900 Stop work to modify clamp. The tools are heavier than the clamp.

0910 Shot down operation - due to exhaust fumes $CO_2 > 12 \text{ ppm}$, $AIO > 5 \text{ ppm}$

They are modifying the exhaust system

0920 Fixed exhaust problem. Attached hose to exhaust and ran out of the building

0935 Tool fixed and resuming fishing activities

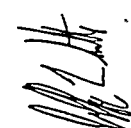
0957 Stop work, due need to be grinded 1/2"

1000 Try again, Luthis getting pipe down hole

1015 At depth, attempting to get overcast around the auger flights

1035 Pulled overcast out of hole. Did not capture the auger flights

1045 Started back into using to try fishing again.



4

3/1/75

4 Apr. 2 LLWL Post Shot Sludge Removal

3754-0422

- 1140 Decide to pull overshot out of hole. We may have the auger flights attached.
1205 Out of the hole. Have attached the auger flight.
1208 Break for lunch
1300 Resume work
1320 Oversight is disconnected from the auger flights
1345 Cleaned off auger flights, start back down the hole
1410 Pulling out of the hole, were turning at over 800 psi down pressure
and wire grinding on something. Potential great seal?
1440 Auger out of the hole. Saw some rock and layer material. Bottom depth of 50 ft.
1445 Drillers taking a break
1510 Drillers resume work
1540 Start to retreat the augers from the hole. No progress below 46 feet.
1608 Had 1000 lbs down pressure and high rotation.
1615 Off of the hole
Drillers + workers off-site for the day

3/8/75

TITLE: Allen. 2 LLWL Post Shot Sludge Removal

3754-042

5

- 0820 Jeff Smith - ERS on-site
Weather: Cloudy, partially sunny
5 RCT/IH: Mike Sorom / Fred Christopoulos
Driller: Russell Sheldon
Freddy Greas
Welder: Barry Caucey
Laborers: Leon Felix
Greene Cherry
James Clenden
Ralph E. Noyes
10

- 0845 Daily Tailgate Safety Meeting. No concerns from drillers
15 0900 Drillers start chime over to tri-cone bit. Will attempt break through obstruction at base of hole. If it is determined that the obstruction is greater than 2 feet we will stop the drilling program.
0910 Waiting for the welder to fit collar bit onto drill string
0940 Welder is completed start tripping down hole
1010 Tri-cone bit broke thru, then exhaust hose burned through a hole
1020 Resume work
1035 Exhaust hose burned through - Drillers break for Security Briefing will return at 1300 with new metal exhaust hose
1305 Drillers back on-site. New metal exhaust pipe on.
1308 Start tripping out of the hole
1345 Have tripped out. Found chunks of rock in the collar bit - limestone
1350 Tripping into the hole with 8" auger
1410 Bore through 46' with augers - slow go to 53'

3/8/96

Area 2 LLNL Post Shot Sludge Removal

3754-042

6

1430 Started tripping out of the hole
 1450 Out of hole. Bottom 10 feet of caddy much more sandy. We plan to
 (on caddy) in and out and hope to get the loose material out of the
 well. Watch air.
 1455 Drillers on break.
 1520 Bakers resume work. Trip broke down the hole.
 1530 Drillers at Total Depth
 1545 Bottom of stroke 56' start pulling string out of the hole
 1605 Out of hole. Leave caddy hanging in hole. will clean off tomorrow AM
 1615 Drillers + Bobb off-site

Area 2

3/8/95

Area 2 LLNL Post Shot Sludge Removal

3754-042

TITLE

Work cont.

0830 ERS - Jeff Smith on-site
 Weather: Cloudy, partially sunny, slight breeze, temp. 60's
 Vanic Alfred called in AM and told me he could not provide RCT
 support. I tried to reach Steve Hellingman but he had left for
 Area 25. Steve Bobo has supposedly reached Steve and he is on
 his way to the LLNL Post Shot. I can't reach Hellingman on the radio.
 I called Sabine Loris late yesterday afternoon to give her a status
 report and tell her what we wanted to do. She stated that getting
 sand down hole to solidify the sludge would be a form of diversion.
 I talked with her this morning and explained the situation and the
 concern of possible downward migration of yesterday's material. She
 agreed that it was a concern but was afraid of what the MHP
 would call the action. So we are just going to lean out the hole
 a couple of times and walk away from the hole.

0900 Still waiting for Steve Hellingman
 0955 RCT on-site
 1000 Safety Briefing given to crew

RCT:

Drillers: Russell Skelton

Freedy Green

Labors: Leon Felix

James Clonon

Ralph Noyes

Webster: Barry Cusick

3/8/95

Jan 1 LLNL Post Site Sludge Removal

3754-02

- 1005 Start cleaning auger flight off. Appears that the lower 10 feet of the auger
46-56' is gravel, silt, and brown, no odor. It is lightly coated with the
black silty sludge with septic odor.
- 1030 Start down hole for final cleanout
- 1050 Start pulling pipe out of hole
- 1100 Clem, BEP on-site wanted a status report. He had talked to Sublim
and was concerned that we had created a condition for potential contamination
to migrate downward. I told him that was a potential concern as
we did not know the shape of the lining. I showed him cuttings from
the base of the auger. This material was not extremely runny and has a light
silt-clay content. Clem noted that it was unlikely that contaminants would migrate
vertically past this gravel layer.
- 1120 Drillers out of the hole and break for lunch
- 1130 Clem off-site. He would like us to try the hole on Monday
- 1215 Resume work $\Rightarrow$ Steam Cleaned for on-site 5/13/80
- 1320 Steam Clean on-site
- 1415 Steam Cleaning Complete
- 1450 Work complete all personnel off-site

W. L. L.

3/9/95

Monday 3/1/85
 0700 Load up to sample at Area 2 Bitterwater +
 Postshot. Got sample bottles + supplies
 from trailer.
 Got Trip blanks from lab.
 1000 Met Hopper + Morris at Mercury Gas Station - followed
 me to Area 2
 Arrive Area 2 ? redified clay - slight breeze -
 partly cloudy
 Will sample the following:

Time	Sample No	Explanation
1215	A2-P-1	Sludge Sample Postshot (592-408)
1230	A2-P-2	Blind replicate of above (592-408)

Note: These were sampled using a clean
 soil auger. Sludge was put in stainless
 steel bowl + mixed to form composite.

Samples

1315 A2-P-3 - Sludge (592-407) Postshot
 NOTE: Sampled using stainless steel scoop
 (not enough sludge to use auger) + mixing
 in a bowl

1345 A2-P-RINSE - Decon Water (592-406; 592-408)
 NOTE: Composite sample taken from 2 drums
 with new Coliwater. Morris + Hoop
 emptied decon pad prior to sampling.

1415 A2-B-RINSE - Decon Water (592-328) Bitterwater
 NOTE: Sampled with clean stainless steel beaker

1445 A2-B-PILE - Soil pile at Bitterwater from Excavation
 NOTE: 3 locations mixed for composite sample
 (592-330)

Angela Olson

All samples were analyzed for:

- TCLP DA (8260)
- TCLP BNA (8270)
- TCLP Metals (6010/7470)
- TPH total (8015 mod)
- pH (9040/45)
- Flashpoint (1010)
- Gamma

1530 Complete sampling - finish up notes, labels, bagging
 samples. Morris + Hoop polished the area. Closed
 up drum. I put Brady Labels on drums
 at Post Shot

1630 Unload truck + samples
 1700 End of day

- Work Order # 3754-040 Sub Act
 WELL

Brady Label

592-401
 592-402
 592-403
 592-404
 592-405
 592-406
 592-407
 592-408
 592-330
 592-328

Description

Personal Protective Clothing

Plastic

"

"

Decon Water at Postshot

"

"

Sludge from Postshot Injection Well

"

Soil pile at Bitterwater

Decon Water at Bitterwater

Tuesday 3/1/85

Take samples to laboratory (3754-040) → A25-310
 Went to Area 25 to sample septic tank at Test Cell C
 + drum at EMAD with Bobo (3754-038 + 3754-041) → A25-320

Angela Olson

Tuesday 7-23-96

- 0700 Complete Shovel Haz. Ass.
- 1000 Leave Mercury
- 1030 Arrive Cement Services Neil Campbell's office
- Discuss day's activity:
 - Begin preliminary activities at Area 2
 - Bitterwater & Postshot Injection Wells
 - Clean out sump
- Area was graded yesterday, and old orange fencing was removed & replaced with rope fence.
- 1100 Crew will be mobilizing equipment & gathering supplies for rest of day

Wednesday 7-24-96

- 0830 Arrive Area 2 Bitterwater / Postshot facility
- On-site: Sim McCloskey, Irid Hoger, Larry Haywood, Neil Campbell sick today. All we will do today is pump water out of the Post shot sump.

Filled 2 drums with liquid placed Brady label #s 592-602 & 592-603 on them. Per Rob Belhecke will need to sample for lead and total petroleum hydrocarbons because they were the

(Signed) J. Simon

7-24-96

57

constituents of concern found in the Postshot Sludge.

Went to RCEA sites, conducted monthly inspections place Brady label 592-601 on liquid removed from Bin #774 after it was steam cleaned.

0830 Arrive Area 2 Bitterwater / Postshot Injection Wells. 7-24-96, Wednesday

Weather: Clean, breezy, warm.

Activities: Sample drums 592-602 & 592-603 at this site & 592-601 at SEEPs

Will collect composite sample from 592-602 & -603

Analyzer for: Method 6010

- RCEA metals - 1 liter, Nitric acid preserved (22)
- Total petroleum hydrocarbons - 2 liters plus 120 milliliter (no headspace). Method 8015 Modified

0845

Sample ID: 592-602/603

Collected sample, label, put in cooler on ice, used new solvents, pieces waiting analysis, sticker, complete chain-of-custody

0930 Leave area 2

0945 Arrive Area 6 Steam Cleaning Effluent Pond

Will sample drum 592-601 which contains about 20 gallons of rinse water collected after cleaning the tractor & B774 which had been leaking.

58

(Signed) J. Simon

7-24-96

- 1000 Collect Sample ID 592-601
- Volatiles, 3-40ml; HCl to < 2 pH; used new barrel w/ VOA adapter, Method 1060
 - Total Petroleum Hydrocarbons; 2 1 Liter plus 120 ml (no headspace); Method 8015 Modified

Also collected trip blanks this morning from lab.

0712 - Sample 592-601 TB Trip Blank
Placed samples on ice after labeling, completed chain of custody

Note: 512-139 asbestos pipe. Should be removed today by Waste Management.

8-5-96, Monday

0800 Arrive Area 1 Subdock, Drilling Days Planned Activities:
Start preliminary actions for Area 2 Bitenther / Postshot Containment Shoop closure

- Complete fencing, make decon pad out casing (10-inch) - remove, replace with 20-inch, backfill with concrete.
- Muck out source material from Bitenther

Conduct pre-job Health + Safety Meeting Personnel onsite:

Neil Campbell - Construction Supervisor
Bill Conan, Helen Roper, John Bratten, Serry Prothe
Fred Greene, Don Tait, Tuesday Berthoff,
Leon Felix

0900 Leave Area 1 arrive Area 2 Bitenther

Complete site setup. Fence area around Bitenther establish decon pad. Setup drill rig over Bitenther

0910 See Hoyer, Safety onsite - Will only be finishing setup this morning. Industrial hygiene onsite this afternoon, see office

1200 Lunch

1230 Changing augers on drill. The interior of the well has a one inch lip around the

Angela L. Sun

60

perimeter. Twenty inch flight will not fit. Line to health + safety concerns we do not want to torch the lip off, will instead use smaller diameter auger. Atmosphere inside Bitterwater well 96% volatiles (peat) lower explosive limit

19.6% oxygen

Satish Slete, Industrial Hygiene conducting survey Frank Mufz, operator/mechanic onsite to cut Postshot 10-inch casing off

Kirk Powell, Laurel Hughes, site inspectors also onsite. Given all 3 prejob Briefing. Laurel + Kirk will be onsite for concrete pour to collect samples which will be tested to make sure compressive strength is greater than 3,000 pounds per square inch. They will come out tomorrow when we fill up the Postshot Sump area. We'll fill the vault area, between 108" exterior + 20 inch replacement pipe.

Begin cutting the base steel plate at Postshot Satish will monitor the atmosphere inside the well during pile cutting. Not completed for work permit will cut base about 1 ft. foot away. Begin not work. Base of sump consists of 1 inch steel with concrete beneath it. Heat is

expanding thru the concrete + is changing the atmosphere inside casing

Amphibian

61

8596

60

Postshot Reading
Outside Well

Oxygen (O_2) - 20.8%
Carbon monoxide (CO) - 0.0 ppm
Lower Explosive Limit (LEL) - 0.0
Hydrocarbons 0.0

Inside Pipe

O_2 - 20.9%
CO - 0.0 ppm
LEL 1%
Hydro 7.8 ppm

→ With welding operation
Outside hole

O_2 - 20.6%
CO - 8 ppm
LEL - 0 ppm

Inside hole

O_2 - 19.1%
CO - 520 ppm max
LEL - 3-5%
Hydro - 9.0 → 22.3 ppm

Atmosphere remains normal in breathing zone.

Drillers finally found it easier to fill the rig for Bitterwater Sludge removed. 1545 Drop stem down Bitterwater -

Amphibian

62

8596

U1

Surface of material is at 44 feet. Drill stem is sitting in soft substance. Brought stem away up. Very black sticky sludge. Will bag up the auger stem + start removal tomorrow.

Reading in hole prior to entering hole

O₂ - 19.97%

CO - 1 ppm

CEC - 2.9%

Hydro - 90 - 98.5 ppm

Have completed cutting around Postshot casing.

Kirk Powell +
Secure area, cover holes,
End of day

Annex 11
Annex 11

63
8596

62

0815 Arrive Area 2 Bitterher / Postshot
Day's Planned Activities -
→ Remove Postshot 10" casing + replace with 20" casing. Backfill vault space with concrete
→ Remove Bitterher Sludge.

Personnel onsite:

Billy Loman, Sam Bratton, Arlen Rogers, Felix
Fred Greene, Frank Martin, Don Tail, Leon, ~~tail~~

Serry Prother

Weather: Clear, warm, breezy

Conduct Tailgate Safety Meeting

Serry + several others expressed concern about radiological constituents in the Postshot sludge. Due to past activities. Will try to arrange RadSafe support for sludge removal.

0900 Try to remove 10" casing with 20 ton fork lift. No go. Cracked casing at base. Use arc welder to widen out.

0900 Collect Trip Blanks → A2-B1-TB

1000 Begin sludge removal from Bitterher. Collected samples using stainless steel scoop + bowl from first material out of hole.

2-120ml Volatiles

1-250ml Total Petroleum Hydrocarbons

1-250ml TCLP Metals

1-500ml Gamma Scan

All samples were immediately labeled, and placed

Angela Wilson

84

64 TITLE

Work continue, from Page 63

PROJECT NO.

BOOK NO.

On ice

Monitored breathing zone with Photon 6705

Petector. Concentrations ranged from

0 parts per million (ppm) to 6.7. When

the meter was held within 6-7 inches

concentrations jumped to 60-70 ppm.

Within one inch up to 523 ppm.

As long as you are upwind levels

stay below 6.7 ppm.

Material in sump is very black & thick

filled 2 drums.

592-604's Bitulther Sludge, 50 gal

592-605's " 50 gal

1000-Kick Powell onsite

1015- " offsite

1630 Dr. Gary Hudak & Devin Nelson, Peer Consultants

They will be conducting the

independent inspection. Spoke with Gary about

the drawing which specifies "concrete" to be used

as a plug in the holes, rather than a cement

grout or concrete grout as specified in the

Close. Ron, Neil Campbell has expressed concern

about using concrete because it has a

tendency to bridge. And if the concrete is

made thin enough it will not meet the

3000 psi compressive strength requirement.

Work continued to Page 65

DATE 8-6-96

DATE

TITLE

Work continued from Page 64

PROJECT NO.

BOOK NO.

1130 Complete Bitulther cleanout

Top of sludge was 44" from bottom of

sump, 91" feet from ground level.

There is approximately 66 feet of

unimpacted sediment. At 47 feet from bottom of sump

we hit a sand pack. At this

point we cleaned out the bottom as well

as possible.

Total depth 47 feet, after cleanout 49.5 feet.

Began cleaning around sump, covered and secured.

1200 Lunch

1230 They have been working on removing the Winch

coming from the Postshot all morning

It still are welding

1300 Neil Campbell onsite

1320 See Auger onsite. Did not note any major

infracton

1340 See Offsite. Kirk Powell, Laurel Hughes

onsite

1415 It has been determined that the casing must

be added to the underside of base of the Sump.

Casing broke at base when trying to remove

Going to put a temporary plug in the hole

a couple of feet from the top. This way

a 20-inch hole can be cut without

Work continued to Page 66

SIGNATURE

DATE

DATE

DATE

DATE

DATE

DATE

Work continued from Page 65

sparks dropping into the hydrocarbons
We have been monitoring the hole's atmosphere
at all times while conducting hot work.

LEL - 17.2%

UEL - 19.8 to 20.3 ppm

inside hole - 135 peak
breathing zone - has reached
alarms level (35 ppm)

Had trunk flute evacuate
several times to allow
air to clear. Using air mover
has helped.

Pulled 10" casing off completely prior to
putting in temporary plug

Tuesday Benshoff was on site at 1300 to
steam clean drilling Kelly & augers,
Generate one drum full of rinse
water.

592-606, Biterter, rinseate, 25 gallons
592-607, Biterter, PPE, plastic

Neil Offsite

Plug has dropped down hole. Drillers think
it will not be a problem getting out.
Spent rest of day denubing Biterter, securing area

Work continued to Page 67

SIGNATURE *Angela Blum* DATE 8-6-96
WITNESS

Work continued from Page 66

Wednesday 8-7-96

0700 Spoke with Sabine to update her on
Biterter progress.

0800 Leave for Area 2

0840 Arrive Area 2 Biterter Postshot

Days Activity:

Cut sump base plate on Postshot, replace with
20-inch casing, pour concrete,
clean up Biterter area.

Personnel onsite:

Fred Bepko, John Dratton, Frank Mute, Leon Felix,
Don Tait, Fred Greene, Jerry Petho
Weather, clear, warm, breezy

Conduct Tailgate Safety Meeting

The plan is to wedge lengths of rebar
in the hole & place a non-flammable
cloth over the rebar to form a
barrier between the hole & hot work
and the hydrocarbons. The barrier
will be tied off so that it will
not fall in & can be removed.
Paper & Dratton are removing plastic from
Biterter activities.

0900 Collected sample from Biterter sludge for
flashpoint

Sample ID Same as yesterday

A2-BIT; Flashpoint, 250 ml.

Work continued to Page 68

SIGNATURE *Angela Blum* DATE 8-7-96
WITNESS

58 TITLE

Work continued from Page 67

PROJECT NO.
BOOK NO.

1000 Kraig Knapp onsite gave custody of sample to him so that if could get out with the ones collected yesterday.

1005 Kraig onsite
test Casing is going well. Atmosphere in well remains normal. $LEL = 0\%$
 $O_2 = 20.6 \rightarrow 21.1\%$, $CO_2 = 7-13\%$ ppm.
Have discovered that the downhole casing is 24 inches in diameter not 20 inch.
Driller off to find new piece to weld on.

Bill Loman onsite fed back injury prevention training

1000 Have completed cutting base plate. Drillers have located a 24-inch piece of casing in trench. The crew is heading there. Frank will have to cut the piece to length, and by the time they get it loaded it will be lunch time. Drillers also need a air drill to make holes so put in fence post. I will stay on site for fire watch.

1045 Crew built a site. Start installing 24 inch casing in hole. Welded around bottom so concrete won't fall in hole, welded supports on sides.

1055 Ge-fun onsite. Neil Campbell onsite. Rick Powell, Laurel Hughes, inspectors onsite.

Work continued to Page 67

SIGNATURE Angela D. Loman DATE 8-27-96
WITNESS DATE

TITLE

Work continued from Page 68

PROJECT NO.
BOOK NO.

69

1430 Complete installation of casing. First cement truck onsite. Graving 4 cubic yards of 4,000 psi concrete left over from another project.
Rad. Safe onsite. Tell them to come back later.

1445 Place concrete in sump area. Rised up 2nd. See offset.

1515 2nd fluid onsite. Kick & haul. will collect compressive strength sample. Placed concrete into 5 cylinders which will be tested at 7 and 28 days. Drilling has a flat tire. Mechanic onsite to fix.

1530 Complete backfilling. Added another 13 cubic yards bit a total of 13. This filled it up almost to the top.

Neil kick, lance, offset.

1600 Back rig into place, secure area.

20 1630 Leave site

Work continued to Page 68

SIGNATURE Angela D. Loman DATE 8-28
WITNESS DATE

Work continued from Page 67

PROJECT NO.

BOOK NO.

Thursday 8-8-96

0830 Mine Area 2 Bunker Postshot
Personnel onsite:Leon Felix, Fred Greene, Kirk Powell,
Jerry Prothro, Don Tait, Fred Hooper,
John Bratton, Troy

Day's Activity:

Remove Postshot sludge, fencing
Remove waste drums

Weather: Partly cloudy, hot

Ranse Spillock & Jose Montoya on site. They
are lining up with the laborers the
fencing. The drainlink fence around Bunker
will be put up next week.Crew working on laying down plastic, setting
up a/c on, attaching "bailler" to drill stem.

0830 Mary Horvath, RadSate, onsite. Crew suit up.

0845 Drop bailler down hole.

Hit water at 23'.

Hit plug we dropped down at 27' 10".

Removed about 10 gallons of water. Bailler
would not go through plug. Put on 16" auger
bit, pulled it up and got sludge. I think
the plug is being pushed down through the
sludge. will continue using auger.

Work continued to Page 71

DATE

DATE

WITNESS

DATE

Angela Allen

DATE

DATE

WITNESS

DATE

PROJECT NO.

BOOK NO.

TITLE

Work continued from Page 70

1000 Steve Nacht onsite.

RadSate is not picking up any readings
Pluton gas detector readings 0.0 → 7.8 ppm
at surface of sludge

1030 Steve offsite

1145 Dave filled 2 drums so far. Monitoring
results have remained about the same
Postshot

592-608 } 50 gallons each Bunker 8

592-609 } sludge

1200 Lunch

1230 Resume work

1300 Rob Grel hecky on site to remove 2 drums
from Bunker 1 & 2 from Postshot

Manifest # 9610.7

Drums

592-604

592-605

592-608

592-609

1430 Rob offsite

Crew has cleaned up the plastic at Bunker 8

Work continued to Page 72

DATE

DATE

WITNESS

DATE

Angela Allen

DATE

DATE

WITNESS

DATE

Work continued from Page B

PROJECT NO.

BOOK NO.

44 feet below ground surface reached a very hard native material. Brake end of auger was also getting hung up on the bottom of the casing. at 47 feet 844

Discontinue sludge/sand. Have removed all possible source material.

592-613 } Postshot Study; 50 gallon each
592-614 } Total of seven drums
592-615 } filled

592-616 }
592-617 } PPE/Plastic Postshot
592-618 }

Scheduled Tuesday B to be here after lunch to steam drums.

00 Arr to lunch

00 Start denobling site

15 Tuesday opsite

00 Begin steam cleaning

* Will sample Postshot rinse water (592-618)⁶¹⁹

10 Sample ID: A2-PS-RINSE 592-620

Parameters:

Total Totals; 1 liter; H₂O

Total Petroleum Hydrocarbons; 2 liter ± 120ml

Work continued to Page B

SIGNATURE Charles A. Plam DATE 8-12-96
DISCLOSED TO AND UNDER CONTROL BY

WITNESS

DATE

DATE

DATE

Work continued from Page H

PROJECT NO.

BOOK NO.

Samples were collected using a new bailer. Jars were immediately labeled & placed on ice.
592-618-619; Postshot rinse; 50 gal
592-620; Postshot rinse; 15 gal
Approximately gallons of rinse water were generated during the cleaning of the augers, bailer, tools, etc.

* Sample Bitterroot rinse water (592-620)
Sample ID: A2-BIT-RINSE
Parameters:

Total Volatiles; 3.240 ml ± H₂O

Total Totals; 1 liter; H₂O

Total Petroleum Hydrocarbons; 2 liter ± 120ml

Samples were collected using a new bailer. Jars were immediately labeled

Note: Trip Blank samples collected this AM.

1400 Area is secured, labors are going to stay & police area continue feeding

1730 End of day

Work continued to Page B

SIGNATURE Charles A. Plam DATE 8-12-96
DISCLOSED TO AND UNDER CONTROL BY

WITNESS

DATE

DATE

DATE

Wednesday 8-15-96
Neil called to let me know they were pouring the concrete for the fence today. Kirk Powell, inspector, is onsite.

Thursday 8-16-96
No concrete was poured yesterday. Laborers hit a water line while drilling holes for fence posts. The line was 6 inch. Trenching. Cables are being laid. Line was shut off at nearby valve box. (The one inside fence). This has no impact on closure activities.

Neil proposes filling the line with grout. It is an old line that feeds the fill stand in Area 2. This fill stand line will be rerouted. Concrete for fence posts poured today.

Monday 8-19-96

Mr. Gary Hudak, independent inspector P.E.E. Consultants, Julie Soroka, B.U. design engineer, & Frank Davis, eng. arrive in Mercury. They want to meet with Neil Campbell & Kirk Powell.

Gary is concerned that the grout mix specified by Neil has no testing records. Neil gave Gary the name of the person to contact. Gary was able to get see enough information to satisfy his requirement. He is going to look into what

Work continued to Page 17

SIGNATURE *Angela Llan* DATE 8-17-96
WITNESS

type of testing is required for the grout
- Compressive strength range?
- Shrinkage test?

1400 Arice Area to 2 Bitterroot Postshot.
Rouse Sparlock and Jesse Montoya onsite installing chainlink fence.

Meet with Kirk Powell. Discuss changes that will be made to the engineering drawings to correspond to conditions found in the field. I will prepare a list.

Another problem has been brought up by the state. They want to know why we are calling the Postshot well a clean closure. I will put together a memo giving justifications.

Tuesday 8-20-96

Begin justification letter for deactivation of Postshot. Spoke with Neil - arrange a tentative date for grouting Bitterroot Postshot for September 3. Also gave this tentative date to Gary Hudak & Sabine Curtis. Gary needs to arrange for Dean Nelson to fly in for the grouting to serve as the independent inspector.

Work continued to Page 77

SIGNATURE *Angela Llan* DATE 8-20-96
WITNESS

Work continued from Page 82

30

1105 Flare lost flight once. Start auger down. Stop going. Stop at 49 feet. Field Green checked his logs from 8-12-96 which means I miss understood him. I had previously recorded total depth of 44'47' when his logs indicate 44'. This coincides with TD measured today.

→ Total Depth: 49' Finger to 49'

1200 / unch

1345 Dred back in. Pump out rod, remove bit,
+ put on core barrel. Core barrel was
decontaminated prior to placing in hole.
1340 Pulling string out remove core barrel.
1355 Collect sample from 49' to 51'. Material
was dark black sludge.

Sample ID A2-PS-49/51

TCP Metals

Total Petroleum Hydrocarbons

15 Collected headspace sample in ziploc baggie
100cc. containing 100cc. water

1420 Sabiee offsite Tuesday Benshoof onsite

1430 Used PID, volatile organic compound

Concentration peak at 683 ppm

Work continued to Page 84

SIGNATURE Mr. S. A. Brown

DISCLOSED TO AND UNDERSTOOD BY D

SSJ-21/A

DATE 9-21-6

TITLE
Work continued from Page 83

Tuesday, steam cleaning the core barrel +
about last 5-6 feet of drill rod.
1440 Drop clean core barrel down hole. Not
getting anything. Pull up stem. Sand
catcher was sideways. Fix, drop
down well again.
1455 Collect sample from 51' to 53' interval.
Got a 2' full sample, black sludge, sandy, damp.
A2-PS - 51/53
- 1 @ 250 ml TLP Metals
- 1 @ 250 ml TPH
- Headspace sample in Ziploc

1520 - Dropped rods down well. Working on
interval. Have bit on the end, need to suspend,
1545 - Headspace on 51' to 53' interval = 617 ppm

Friday, drilled a mirror down the well +
was able to determine that the 24 inch
casing extends only to a depth of 33
feet below ground surface. He could see
the borehole walls which looked like
brown soil. Bottom of hole was black.
555 Retrieved rod stem. Start pulling up rods to
bottom up site for weekend. Had life off site.
Did not pick up anything above background.
Return to Mercury.

SIGNATURE

Work continued to Page 85
DATE 9-12-96
WITNESS

DISCLOSED TO AND APPROVED BY

DATE

WITNESS

TITLE
Work continued from Page 84

Monday 9-16-96

Arrive Area 2 Postshot Injection Well
Day's Activities:

Continue drilling a core sampling in Postshot Well.
Will auger from 49' to 53' and continue in
2 foot intervals.

Personnel on site:

Frddie Green, Lou Felix, Don Miller, Sim Hickey,
Kirk Powell, Sim McCloskey

Weather:

Windy, Cool, Cloudy

Conduct Tailgate Safety Meeting
Begin augering from 49' to 53'

0800 Elaine Anderson, Radlon Technician, onsite. Told her

I had canceled their support with Vance Albee
this morning. She was told that Daryl Schwitberg
required for her to be onsite & she can't leave.

20 We went to Area 12 to use phone. Called Steve
Nacht. Let him know that I had Sim McCloskey
here for support & didn't require RadSafes help.
Told him Daryl was scheduling RIT support without
authorization (Elaine was here all day Wednesday
when there was no activity). Also left message
with Bob Dodge.

Call Daryl to try & give get him to give Elaine the
OK to leave. He told me that the crew requested

SIGNATURE

Work continued to Page 86
DATE 9/16/96
WITNESS

DISCLOSED TO AND APPROVED BY

DATE

WITNESS

Work continued from Page 85

PROJECT NO.
BOOK NO.

Elaine + that she would remain onsite. I tried to explain that we have our own RCT that needed work + our first priority is Jim. He informed me that Herb Binsinger authorized the support with Bob Dodge approval. I do not think Bob or Herb know that Jim was available. Daryl claimed that I had a problem last Thursday with Elaine + he was insuring his workers safety. I told him my problem was not with Elaine but with the fact that we did not need support at all based on analytical data + previous monitoring but that I would keep an RCT onsite as the crew requested. Daryl said he did not trust Jim + the crew did not trust Elaine. He got very nasty with me. Told me that I "got my orders - now, do you want the hole drilled or not."

Rather than continue at this level - I sent Jim home + kept Elaine.
30 Tuesday Binschoof onsite.
Drillers pulled out bit + replaced with dean core.
Pulled up 2 foot of sandy material, - some sludge obviously impacted but improving.

Collected sample 12-PS-53/55

1 @ 250 ml TPH

1 @ 250 ml TCLP metals

Work continued to Page 87

DATE 9-16-96
WITNESS

DISCLOSED TO AND UNDERSTOOD BY

SIGNATURE *Ingall*

Work continued from Page 86

PROJECT NO.
BOOK NO.

1 headspace sample in Ziploc.
1015 Vance Allied onsite. I let him know that I had no problems with Elaine's work but that I wanted to keep Jim billable. He had feelings on Vance's part. Vance feels that Jim is qualified + only sent Elaine at the request of Daryl.

Note: I talk to Fred Lean, Dan + Jim. Told them H.O.A. if they had health + safety concerns they should bring them up to me. Asked them if there was any problem with keeping Jim on - they said no. Asked them if they requested Elaine like Daryl said - they said no.

1030 Jeff Smith onsite. Vance offsite. Told Jeff the problems with Daryl. He will have a talk to him.

1100 Unable to collect sample from 55' to 57' foot interval - too hard. Not enough weight. I think we have entered the hole previously drilled in the first sludge removal event last year.

Put heavier rodson + tried to core again - no success. Will place another auger flight on + drill some more. Will try to pull augers up a foot to obtain core. If this won't work well put augers + see. Placed Brady labels on the drums.

Jeff Smith offsite

Work continued to Page 88

DATE 9-16-96
WITNESS

DISCLOSED TO AND UNDERSTOOD BY

SIGNATURE *Ingall*

1200. Lunch

12300 have 1 gun auger drilling from 53 feet slow going because of the small 6 1/2" augers in it. 24" diameter hole too much down

pressure and the augers will buckle. Have reached 55.5 feet below ground surface. Unable to go further. Augers are bending. So much they are scraping sides of 24" inch casing. Pull auger stem up about a foot, hoping that some of the broken up pieces will fall to the bottom & be picked up with the core barrel.

Core barrel not working. Begin tripping out augers. Have a total of 60 feet in hole. Top 10 feet clean, middle 20 feet packed up a slight amount of sludge ^{from wall} bottom 20 feet have brought up black sludge with sand at the last 2 feet.

Collect sample of the clean botting brown sand
at 55.5 feet below ground surface
47-PS-555.

A2-PS-55.5

1 @ 250 ml TPLH
1 @ 250 ml TOLP Metals
1 Headspace in Ziploc

Head space on 53-55 bot interval peaked at 285 ppm

DATE	AMOUNT	DATE	AMOUNT
9-16-94			

Work continued from Page 88

with

samples were collected from a clean stainless steel scoop, labeled & placed on ice. Headspace allowed to volatilize for 30 minutes. Clean off the remaining sludge from the outside the augers. Removed approximately 10 gallons max. name. Placed in drum. Ran auger flight down one more time. Picked up very little sludge or sand.

10 153 Begin cleaning -- mobilization - Tuesday
Steam cleaning augers + all equipment
potentially impacted

Brady labels:

592-621 $\Rightarrow$ Primarily PPE + plastic with
about 10 gal of impacted sludge Plastic
was heavily soil - augers were cleaned
off over it. Will assume hazardous.

20
Called Matt ~~Agnew~~ from Waste Management
for pickup + transport to Areas Storage
Tad will give the 3 day time limit.

592-6252 → Decon Water - Generated 9/5/94
primarily from core barrel decon. About
20 gal. will be used disposal on sample
results for A2-PS-Rise.

592-6223 $\Rightarrow$ Poor Water - Generated 9/13/96 + 9/16/96
Auger + soil decon - About 40 gallons
Base disposed on 42-PS-RIN SE

Work continued to Page 22

36117-0000
Jens La Cour

DATE	AMOUNT	DATE
11/10/55	100.00	11/10/55

00 Site secure. Crew offsite. Complete.
also a of custody. Will request rush
turnaround.
Leave site.

Stopped by Neil Campbell's office on way
back to Mercury. Due to family illness
we has not been to work full time.
Asked him to try + schedule five grouting
at this Biterter for next Monday.
He was told by personnel at the Materials
Testing lab (where rig is from) that
samples will be collected at the grout
ingredients prior to mixing. Need to
check out. + fax him copy of state
approval to grout Biterter.

Head for Mercury
Arrive Area 23 Building 650. Catherine
Lestrada waiting to accept custody.
Asked for rush turnaround.
Submitted only Sample AZ-PS-55.5
Date: Near space reading for sample at 555
feet still had high volatile readings,
peaking at 180 parts per million.
Call Subini - left message of update.
Call Bobbi-Lee about Gary Schwartzberg's behavior.
Will see them both tomorrow. Will be in TWI training
end of day.

SIGNATURE		DATE	
Catherine Lestrada		7-14-96	
DISCLOSED TO AND UNDERSTOOD BY		DATE	WITNESS

Work continued to Page 88

Monday 9-23-96
Arrive Area 2 Biterter / Postshot facility.
Day's Activities:
Grout Biterter Injection well, collect grout
samples, brm up 2 Biterter concrete
pads.
Drake: Gary Hudat, Kirk Powell, Jim Annett, Neil
Gimpore.
Weather: Breezy, clear.

Waiting for grout truck to arrive.
1135 Grout truck arrives begin filling Biterter.
1145 Filled from total depth at 44.5' to
3 inches below ground surface. Took
about 6 cubic yards. Kirk + Jim
took cylinders for compressive strength
tests + bars for shrinkage tests.

1930 Lined the laborers out for setting up forms.

Note: Postshot well was video logged - on
September 17.
Dum 592-621 removed Sept 19, 1996
as hazardous waste, 2008 Waste Manifest # 96129
End of day.

SIGNATURE		DATE	
Catherine Lestrada		9-23-96	
DISCLOSED TO AND UNDERSTOOD BY		DATE	WITNESS

Work continued to Page 92

Work continued from page 91

9-24-96

0240 Arrive Area 2 Bitcutter

Guests: Rick Powell, Laurel Hughes, Labores
+ drives Neil Campbell

Weather: Windy, Warm.

Day's Activities:

Pour concrete pads on Ditcher Inside
+ Outside walls.

Laurel & Kirk Collecting compressive strength samples.

4 Dad on Inside Well Specs.

6" over top of well thickness

11. 2 on sides, thickness

6" x 6' welded wire mesh placed midspan
- 1' x 1' control joints at middle

Rad. on Outside Well specs: 1st surface shaped like

1' x 4' square

6" thick

1' x 6" welded wire mesh.

Work continued to Page 93

DATE 9-22-91

DATE 07/10

66
67
68
69

55370.145

7-

07

ETIII

Work continued from Page 72.

93

PROJECT NO.
BOOK NO.

Wednesday 9-25-96

awaiting analytical results from Quanta
Lab for A2-PS-55.5 So far we

Know that Gasoline concentration is 3.5 milligrams per kilogram (mg/kg) and lead was less than 1 mg/kg.

Found out lab's caused the oil & diesel sample to ~~be~~ not be analyzed.

Running sample today & will have results tomorrow

Thursday, 9-26-96

Have called the lab about sample results for the postshot sample. Ted Redding is checking on it.

Got verbal from Ted - Gasoline & Oil concentrations at 1500 mg/kg which puts us way over the 500 ppm regulatory limits. DOE.

investig. DOE -
Sabine Curt's working on letter to state to
ask for closure-in-place, rather than a
"clean closure". Must also waive the 30-d

public review. Because it already had a 30-day review this should not be a problem.

SIGNATURE

Work continued to Page 24

DATE _____

DATE 0000/00/00 BY 01 035015316

1

1

9-26-96

9-26-96

Work continued from Page 93

TITLE

Work continued from Page

1600 Have verbal approval from the State to go ahead & pour. Sabine has E-mailed us written approval. Take to Neil Campbell. Scheduled to pour grout at 6:00 tonight and pour the concrete pad tomorrow at 9:00 a.m. This gives the grout the 12 hour curing period required by engineering. Call Gary Hudak & Kirk Powell to have them here.

1700 Head to Area 2
1730 Arrive Area 2 Bitterroot Postshot Injection Wells.

Onsite: Kirk Powell & Jim Arnett
1800 Gary Hudak onsite. He & Kirk went to the Area 12 batch plant to check on load.

Forms have already been set.

Truck onsite, Neil Campbell onsite
Begin pouring grout. Jim collected shrinkage test bars, Kirk collected compressive

strength cylinders.

End pour. Pour about 6 cubic yards in hole. Will have to cut top of 24" casing off to ground surface tomorrow morning. Forms for pad set at wrong angle & were corrected. Arrange for installation of chainlink.

DATE WHEN PREPARED

SIGNATURE

Work continued to Page 95

DATE

CLOSED TO AND UNDESIGNED BY

WITNESS

DATE

DATE WHEN PREPARED

SIGNATURE

Work continued to Page 95

DATE

CLOSED TO AND UNDESIGNED BY

WITNESS

DATE

Work continued from Page

TITLE

Friday, 9-27-96

0820 Arrive Mercury Get OK from B Dodge to proceed with patting chainlink around Postshot well. Call Neil to confirm.

Get gas, camera -

0840 Head to Area 2

0900 Arrive Area 2 Bitterroot Postshot facility.

Onsite: Gary Hudak, Dave Johnson, three Diland (inspectors), Gabe Klinge, Bobbie (labors), Swede Olson (ironworker) today with.

Weather: Clear, breezy, warm

Day's Activity:

Pour 12" pad over Postshot well. Drill holes for chainlink fence posts.

They have finished cutting off the casing.

First batch is on the way - 8 yards.

0935 Truck onsite. Gabe marking for surface slope.

0950 Begin pour. Place 6" x 6" welded wire mesh in top 1/5 of the pour.

Dave & Vince collecting compressive strength cylinders specs.

1000 Complete 8 yard pour.

Discuss location of chainlink with Swede.

Conclude 3" slump - 74 degrees - Air entrainment 4.28

1015 Hudak & Johnson offsite.

Will try to match Postshot chainlink the same

as the Bitterroot chainlink. 3 strand wire

will connect the two.

DATE WHEN PREPARED

SIGNATURE

Work continued to Page 96

DATE

CLOSED TO AND UNDESIGNED BY

WITNESS

DATE

DATE WHEN PREPARED

SIGNATURE

Work continued to Page 97

DATE

CLOSED TO AND UNDESIGNED BY

WITNESS

DATE

97

Wednesday 10-2-96

Arrive: Area 3 Be/PS

Days Activity:

Pour concrete for chainlink post around Postshot

Onsite:

Kirk Powell, Steve Olson, Bud Seaver,

Bobby With, Gabe Kline

Gabe has completed putting silicone Sealant in control joints of Postshot pad.

Posts for chainlink were dug 10-1-96, the 18" in diameter

Also completed yesterday was placing gravel around Postshot pad, inside fence. Completed: Bitstar grading today. Teamster

have loading equipment.

Waste Management has picked up the

4 drums of insect water generated.

We Postshot to go to Area 5 Haz. Pad.

592-619

Manifest # 97002

592-620

592-622

592-623

Water, unfaint high concentrations of total lead.

They are also picking up drum 592-571 from SCETP as hazardous

Gabe Kline

101

10-2-96

102

Inspected gravel used as final cover - does not meet design drawing spec of less than 1 inch to greater than 1 1/2 inch diameters. Pea gravel was used instead - already have both areas complete; Neil says he + Jeff had agreed to this 3/8 inch road gravel.

Gary Hudak + Dave Johnson, inspectors have agreed that sampling the concrete used for the chainlink posts was not necessary. There is not a great deal of strength required for fencing; however it is the same mix + should meet specs. Also - this is not directly related to the wells closure + will not compromise their integrity in any way.

Surveyors placed brass markers on the 3 cups with the appropriate markings i.e. elevation name, etc. were adhered to pads with epoxy type glue.

Angela Olson

100

10-2-96

APPENDIX C
ANALYTICAL DATA

MARCH 13, 1995

**POSTSHOT CONTAINMENT SHOP INJECTION WELL
SLUDGE SAMPLES AND ASSOCIATED RINSE WATER
(A2-P-1, A2-P-2, A2-P-3, A2-P-RINSE)**

**BITCUTTER SHOP OUTSIDE INJECTION WELL
SOIL PILE SAMPLE AND ASSOCIATED RINSE WATER
(A2-B-PILE, A2-B-RINSE)**



Reynolds Electrical & Engineering Co., Inc.

MEMORANDUM

To S. J. Nacht
From J. L. Cowley JLC
Date April 12, 1995
Subject SAMPLE ANALYTICAL RESULTS

Enclosed are the Analytical Services Department's and DATACHEM's results, requested by J. L. Smith, for the following samples collected on March 13, 1995, at the Area 2 Bitcutter/Postshot Area:

TCLP volatile organics, TCLP semivolatile organics, total petroleum hydrocarbons (gasoline/diesel/oil), TCLP metals, flashpoint and pH analyses of three sludge samples, two water samples, and one soil sample and the volatile organics analysis of a trip blank.

Also enclosed are the results for the gross gamma analysis of these samples.

Please direct any questions you may have to your Client Service Representative, Jerry Dugas, at 295-7220.

JLC:187:ds

Enclosures
As stated

cy w/o encls.

Central Files, M/S 530
A. R. Latham, M/S 708
L. S. Sygitowicz, M/S 612
ACS Packet No. FY95-03-022

cy w/encls.

J. L. Smith, M/S 969

VOLATILES RESULTS



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03299513460661
Page 8

SAMPLE ANALYSIS DATA SHEET



Date Printed.....: 29-MAR-95 13:46

Client Sample Name: A2-P-1

DCL Sample Name...: EO 1181

Matrix.....: SLUDGE

Date Sampled.....: 13-MAR-95 00:00

Reporting Units....: mg/L

Report Basis.....: ☐ As Received ☐ Dried

Client Name.....: REECO

Client Ref Number....: Not Provided

Sampling Site.....: A2

Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00

DCL Client Group.....: S95-0223-QR

DCL Preparation Group: G952X006

Date Prepared.....: 22-MAR-95 00:00

Preparation Method....: 1311/8240

Aliquot Weight/Volume: 5.0 mL

Net Weight/Volume....: Not Required

DCL Analysis Group: G952X007

Analysis Method....: TCLP-8240

Instrument Type....: GC/MS

Instrument ID.....: 5972-0

Column Type.....: DB 624

☒ Primary

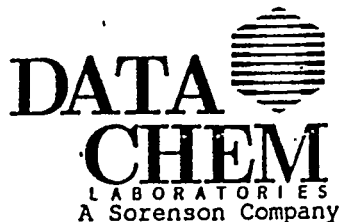
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Benzene	27-MAR-95 15:19	.00012	ND*			.5
Carbon Tetrachloride	27-MAR-95 15:19	.00028	ND*			.5
Chlorobenzene	27-MAR-95 15:19	.00014	0.0015	J		100
Chloroform	27-MAR-95 15:19	.00014	ND*			6
1,2-Dichloroethane	27-MAR-95 15:19	.00013	ND*			.5
1,1-Dichloroethylene	27-MAR-95 15:19	.00040	ND*			.7
Methyl Ethyl Ketone	27-MAR-95 15:19	.00248	ND*			200
Tetrachloroethylene	27-MAR-95 15:19	.00019	0.00041	BJ		.7
Trichloroethylene	27-MAR-95 15:19	.00017	ND*			.5
Vinyl Chloride	27-MAR-95 15:19	.00022	ND*			.2
1,2-Dichloroethane-D4	27-MAR-95 15:19		0.053			
Toluene-D8	27-MAR-95 15:19		0.051			
Bromofluorobenzene	27-MAR-95 15:19		0.054			

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
1,2-dichloroethane-d4	0.0528	0.0500	106.
bromofluorobenzene	0.0536	0.0500	107.
toluene-d8	0.0514	0.0500	103.



FORM A (TYPE I)
SINGLE METHOD ANALYSES

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SAMPLE ANALYSIS DATA SHEET



S952J0BH

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-QR

DCL Preparation Group: G952X006
Date Prepared.....: 22-MAR-95 00:00
Preparation Method....: 1311/8240
Aliquot Weight/Volume: 5.0 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 13:46
Client Sample Name: A2-P-2
DCL Sample Name....: EO 1182

Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952X007
Analysis Method....: TCLP-8240
Instrument Type....: GC/MS
Instrument ID.....: 5972-0
Column Type.....: DB 624

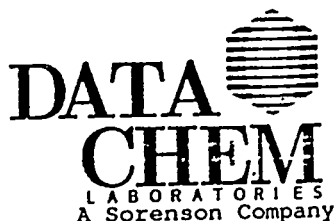
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Benzene	27-MAR-95 15:48	.00012	ND*			.5
Carbon Tetrachloride	27-MAR-95 15:48	.00028	ND*			.5
Chlorobenzene	27-MAR-95 15:48	.00014	0.0013	J		100
Chloroform	27-MAR-95 15:48	.00014	ND*			6
1,2-Dichloroethane	27-MAR-95 15:48	.00013	ND*			.5
1,1-Dichloroethylene	27-MAR-95 15:48	.00040	ND*			.7
Methyl Ethyl Ketone	27-MAR-95 15:48	.00248	0.0052	J		200
Tetrachloroethylene	27-MAR-95 15:48	.00019	0.00043	BJ		.7
Trichloroethylene	27-MAR-95 15:48	.00017	ND*			.5
Vinyl Chloride	27-MAR-95 15:48	.00022	ND*			.2
1,2-Dichloroethane-D4	27-MAR-95 15:48		0.048			
Toluene-D8	27-MAR-95 15:48		0.050			
Bromofluorobenzene	27-MAR-95 15:48		0.053			

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
1,2-dichloroethane-d4	0.0485	0.0500	97.1
bromofluorobenzene	0.0530	0.0500	106.
toluene-d8	0.0500	0.0500	99.9



FORM A (TYPE I)
SINGLE METHOD ANALYSES

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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-QR

DCL Preparation Group: G952X006
Date Prepared.....: 22-MAR-95 00:00
Preparation Method....: 1311/8240
Aliquot Weight/Volume: 5.0 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 13:46
Client Sample Name: A2-P-3
DCL Sample Name....: EO 1183

Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units...: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952X007
Analysis Method....: TCLP-8240
Instrument Type....: GC/MS
Instrument ID.....: 5972-0
Column Type.....: DB 624

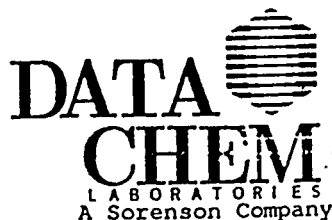
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Benzene	27-MAR-95 16:19	.00012	ND*			.5
Carbon Tetrachloride	27-MAR-95 16:19	.00028	ND*			.5
Chlorobenzene	27-MAR-95 16:19	.00014	0.0018	J		100
Chloroform	27-MAR-95 16:19	.00014	ND*			6
1,2-Dichloroethane	27-MAR-95 16:19	.00013	ND*			.5
1,1-Dichloroethylene	27-MAR-95 16:19	.00040	ND*			.7
Methyl Ethyl Ketone	27-MAR-95 16:19	.00248	0.0078	J		200
Tetrachloroethylene	27-MAR-95 16:19	.00019	0.00038	BJ		.7
Trichloroethylene	27-MAR-95 16:19	.00017	ND*			.5
Vinyl Chloride	27-MAR-95 16:19	.00022	ND*			.2
1,2-Dichloroethane-D4	27-MAR-95 16:19		0.047			
Toluene-D8	27-MAR-95 16:19		0.051			
Bromofluorobenzene	27-MAR-95 16:19		0.051			

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
1,2-dichloroethane-d4	0.0469	0.0500	93.7
bromofluorobenzene	0.0510	0.0500	102.
toluene-d8	0.0511	0.0500	102.



FORM A (TYPE I)
SINGLE METHOD ANALYSES

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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-QR

DCL Preparation Group: G952X006
Date Prepared.....: 21-MAR-95 00:00
Preparation Method....: 1311/8240
Aliquot Weight/Volume: 5.0 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 13:46
Client Sample Name: A2-P-RINSE
DCL Sample Name....: EO 1184

Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952X007
Analysis Method....: TCLP-8240
Instrument Type....: GC/MS
Instrument ID.....: 5972-0
Column Type.....: DB 624

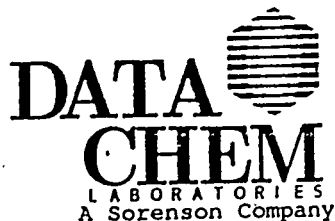
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Benzene	24-MAR-95 14:22	.00012	ND*			.5
Carbon Tetrachloride	24-MAR-95 14:22	.00028	ND*			.5
Chlorobenzene	24-MAR-95 14:22	.00014	ND*			100
Chloroform	24-MAR-95 14:22	.00014	ND*			6
1,2-Dichloroethane	24-MAR-95 14:22	.00013	ND*			.5
1,1-Dichloroethylene	24-MAR-95 14:22	.00040	ND*			.7
Methyl Ethyl Ketone	24-MAR-95 14:22	.00248	ND*			200
Tetrachloroethylene	24-MAR-95 14:22	.00019	ND*			.7
Trichloroethylene	24-MAR-95 14:22	.00017	ND*			.5
Vinyl Chloride	24-MAR-95 14:22	.00022	ND*			.2
1,2-Dichloroethane-D4	24-MAR-95 14:22		0.048			
Toluene-D8	24-MAR-95 14:22		0.050			
Bromofluorobenzene	24-MAR-95 14:22		0.051			

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
1,2-dichloroethane-d4	0.0486	0.0500	97.1
bromofluorobenzene	0.0513	0.0500	103.
toluene-d8	0.0499	0.0500	99.8



FORM A (TYPE I)
SINGLE METHOD ANALYSES

SAMPLE ANALYSIS DATA SHEET

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S952J0BN

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided
Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-QR

DCL Preparation Group: G952X006
Date Prepared.....: 21-MAR-95 00:00
Preparation Method....: 1311/8240
Aliquot Weight/Volume: 5.0 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 13:46
Client Sample Name: A2-B-RINSE
DCL Sample Name....: EO 1185

Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952X007
Analysis Method....: TCLP-8240
Instrument Type....: GC/MS
Instrument ID.....: 5972-0
Column Type.....: DB 624

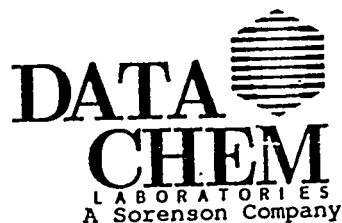
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Benzene	24-MAR-95 14:53	.00012	0.0015	J		.5
Carbon Tetrachloride	24-MAR-95 14:53	.00028	ND*			.5
Chlorobenzene	24-MAR-95 14:53	.00014	ND*			100
Chloroform	24-MAR-95 14:53	.00014	ND*			6
1,2-Dichloroethane	24-MAR-95 14:53	.00013	ND*			.5
1,1-Dichloroethylene	24-MAR-95 14:53	.00040	ND*			.7
Methyl Ethyl Ketone	24-MAR-95 14:53	.00248	ND*			200
Tetrachloroethylene	24-MAR-95 14:53	.00019	0.00067	JB		.7
Trichloroethylene	24-MAR-95 14:53	.00017	ND*			.5
Vinyl Chloride	24-MAR-95 14:53	.00022	ND*			.2
1,2-Dichloroethane-D4	24-MAR-95 14:53		0.049			
Toluene-D8	24-MAR-95 14:53		0.050			
Bromofluorobenzene	24-MAR-95 14:53		0.052			

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
1,2-dichloroethane-d4	0.0493	0.0500	98.5
bromofluorobenzene	0.0516	0.0500	103.
toluene-d8	0.0505	0.0500	101.



FORM A (TYPE I)
SINGLE METHOD ANALYSES

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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-QR

DCL Preparation Group: G952X006
Date Prepared.....: 22-MAR-95 00:00
Preparation Method....: 1311/8240
Aliquot Weight/Volume: 5.0 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 13:46
Client Sample Name: A2-B-PILE
DCL Sample Name....: EO 1186

Matrix.....: SOIL
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952X007
Analysis Method....: TCLP-8240
Instrument Type....: GC/MS
Instrument ID.....: 5972-0
Column Type.....: DB 624
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Benzene	27-MAR-95 16:49	.00012	ND*			.5
Carbon Tetrachloride	27-MAR-95 16:49	.00028	ND*			.5
Chlorobenzene	27-MAR-95 16:49	.00014	ND*			6
Chloroform	27-MAR-95 16:49	.00014	ND*			.5
1,2-Dichloroethane	27-MAR-95 16:49	.00013	ND*			.7
1,1-Dichloroethylene	27-MAR-95 16:49	.00040	ND*			200
Methyl Ethyl Ketone	27-MAR-95 16:49	.00248	ND*			.7
Tetrachloroethylene	27-MAR-95 16:49	.00019	ND*			.5
Trichloroethylene	27-MAR-95 16:49	.00017	ND*			.2
Vinyl Chloride	27-MAR-95 16:49	.00022	ND*			
1,2-Dichloroethane-D4	27-MAR-95 16:49		0.045			
Toluene-D8	27-MAR-95 16:49		0.050			
Bromofluorobenzene	27-MAR-95 16:49		0.050			

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
1,2-dichloroethane-d4	0.0451	0.0500	90.2
bromofluorobenzene	0.0498	0.0500	99.6
toluene-d8	0.0501	0.0500	100.

SEMIVOLATILES RESULTS



FORM A (TYPE I)
SINGLE METHOD ANALYSES

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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-OR

DCL Preparation Group: G952Q012
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311/3510
Aliquot Weight/Volume: 100 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 17:33
Client Sample Name: A2-P-1
DCL Sample Name....: EO 1181

Matrix.....: SLUDGE :
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952V04K
Analysis Method....: TCLP-8270A
Instrument Type....: GC/MS
Instrument ID.....: 5972-N
Column Type.....: DB-5 30mmX.32mm
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
m-Cresol and p-Cresol	24-MAR-95 22:08	.013	0.078	J		0.100
o-Cresol	24-MAR-95 22:08	.019	ND*			0.100
1,4-Dichlorobenzene	24-MAR-95 22:08	.012	0.014	J		0.100
2,4-Dinitrotoluene	24-MAR-95 22:08	.019	ND*			0.100
Hexachlorobenzene	24-MAR-95 22:08	.011	ND*			0.100
Hexachloro-1,3-butadiene	24-MAR-95 22:08	.011	ND*			0.100
Hexachloroethane	24-MAR-95 22:08	.017	ND*			0.100
Nitrobenzene	24-MAR-95 22:08	.012	ND*			0.100
Pentachlorophenol	24-MAR-95 22:08	.017	ND*			0.500
Pyridine	24-MAR-95 22:08	.014	ND*			0.100
2,4,5-Trichlorophenol	24-MAR-95 22:08	.026	ND*			0.100
2,4,6-Trichlorophenol	24-MAR-95 22:08	.028	ND*			0.100

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
2,4,6-Tribromophenol	1.49	2.00	74.5
2-Fluorobiphenyl	0.895	1.00	89.5
2-Fluorophenol	0.682	2.00	34.1
Nitrobenzene-d5	0.846	1.00	84.6
Phenol-d5	0.532	2.00	26.6
Terphenyl-d14	0.881	1.00	88.1

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FORM A (TYPE I)
SINGLE METHOD ANALYSES

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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-OR

Date Printed.....: 29-MAR-95 17:33
Client Sample Name: A2-P-2
DCL Sample Name....: EO 1182

Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☒ As Received ☐ Dried

DCL Preparation Group: G952Q012
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311/3510
Aliquot Weight/Volume: 100 mL
Net Weight/Volume....: Not Required

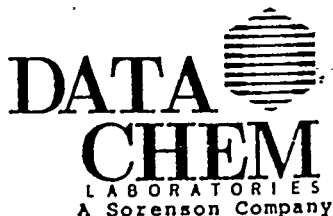
DCL Analysis Group: G952V04K
Analysis Method....: TCLP-8270A
Instrument Type....: GC/MS
Instrument ID.....: 5972-N
Column Type.....: DB-5 30mmX.32mm
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
m-Cresol and p-Cresol	24-MAR-95 23:41	.013	0.086	J		0.100
o-Cresol	24-MAR-95 23:41	.019	0.021	J		0.100
1,4-Dichlorobenzene	24-MAR-95 23:41	.012	0.015	J		0.100
2,4-Dinitrotoluene	24-MAR-95 23:41	.019	ND*			0.100
Hexachlorobenzene	24-MAR-95 23:41	.011	ND*			0.100
Hexachloro-1,3-butadiene	24-MAR-95 23:41	.011	ND*			0.100
Hexachloroethane	24-MAR-95 23:41	.017	ND*			0.100
Nitrobenzene	24-MAR-95 23:41	.012	ND*			0.100
Pentachlorophenol	24-MAR-95 23:41	.017	ND*			0.500
Pyridine	24-MAR-95 23:41	.014	ND*			0.100
2,4,5-Trichlorophenol	24-MAR-95 23:41	.026	ND*			0.100
2,4,6-Trichlorophenol	24-MAR-95 23:41	.028	ND*			0.100

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
2,4,6-Tribromophenol	1.69	2.00	84.5
2-Fluorobiphenyl	0.992	1.00	99.2
2-Fluorophenol	0.808	2.00	40.4
Nitrobenzene-d5	0.920	1.00	92.0
Phenol-d5	0.625	2.00	31.3
Terphenyl-d14	0.868	1.00	86.8



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SINGLE METHOD ANALYSES

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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-OR

DCL Preparation Group: G952Q012
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311/3510
Aliquot Weight/Volume: 100 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 17:33
Client Sample Name: A2-P-3
DCL Sample Name....: EO 1183

Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952V04K
Analysis Method....: TCLP-8270A
Instrument Type....: GC/MS
Instrument ID.....: 5972-N
Column Type.....: DB-5 30mmX.32mm
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
m-Cresol and p-Cresol	25-MAR-95 00:12	.013	0.086	J		0.100
o-Cresol	25-MAR-95 00:12	.019	ND*			0.100
1,4-Dichlorobenzene	25-MAR-95 00:12	.012	0.012	J		0.100
2,4-Dinitrotoluene	25-MAR-95 00:12	.019	ND*			0.100
Hexachlorobenzene	25-MAR-95 00:12	.011	ND*			0.100
Hexachloro-1,3-butadiene	25-MAR-95 00:12	.011	ND*			0.100
Hexachloroethane	25-MAR-95 00:12	.017	ND*			0.100
Nitrobenzene	25-MAR-95 00:12	.012	ND*			0.100
Pentachlorophenol	25-MAR-95 00:12	.017	ND*			0.500
Pyridine	25-MAR-95 00:12	.014	ND*			0.100
2,4,5-Trichlorophenol	25-MAR-95 00:12	.026	ND*			0.100
2,4,6-Trichlorophenol	25-MAR-95 00:12	.028	ND*			0.100

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
2,4,6-Tribromophenol	1.54	2.00	77.1
2-Fluorobiphenyl	0.896	1.00	89.6
2-Fluorophenol	0.632	2.00	31.6
Nitrobenzene-d5	0.850	1.00	85.0
Phenol-d5	0.473	2.00	23.7
Terphenyl-d14	0.912	1.00	91.2

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FORM A (TYPE I)
SINGLE METHOD ANALYSES

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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-OR

DCL Preparation Group: G952Q012
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311/3510
Aliquot Weight/Volume: 100 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 17:33
Client Sample Name: A2-P-RINSE
DCL Sample Name....: EO 1184

Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952V04K
Analysis Method....: TCLP-8270A
Instrument Type....: GC/MS
Instrument ID.....: 5972-N
Column Type.....: DB-5 30mmX.32mm
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
m-Cresol and p-Cresol	25-MAR-95 00:43	.013	ND*			0.100
o-Cresol	25-MAR-95 00:43	.019	ND*			0.100
1,4-Dichlorobenzene	25-MAR-95 00:43	.012	ND*			0.100
2,4-Dinitrotoluene	25-MAR-95 00:43	.019	ND*			0.100
Hexachlorobenzene	25-MAR-95 00:43	.011	ND*			0.100
Hexachloro-1,3-butadiene	25-MAR-95 00:43	.011	ND*			0.100
Hexachloroethane	25-MAR-95 00:43	.017	ND*			0.100
Nitrobenzene	25-MAR-95 00:43	.012	ND*			0.100
Pentachlorophenol	25-MAR-95 00:43	.017	ND*			0.500
Pyridine	25-MAR-95 00:43	.014	ND*			0.100
2,4,5-Trichlorophenol	25-MAR-95 00:43	.026	ND*			0.100
2,4,6-Trichlorophenol	25-MAR-95 00:43	.028	ND*			0.100

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
2,4,6-Tribromophenol	1.66	2.00	82.9
2-Fluorobiphenyl	0.851	1.00	85.1
2-Fluorophenol	1.17	2.00	58.4
Nitrobenzene-d5	0.849	1.00	84.9
Phenol-d5	0.920	2.00	46.0
Terphenyl-d14	0.835	1.00	83.5

015



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03299517330553
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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-OR

DCL Preparation Group: G952Q012
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311/3510
Aliquot Weight/Volume: 100 mL
Net Weight/Volume....: Not Required

Date Printed.....: 29-MAR-95 17:33
Client Sample Name: A2-B-RINSE
DCL Sample Name....: EO 1185

Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☒ As Received ☐ Dried

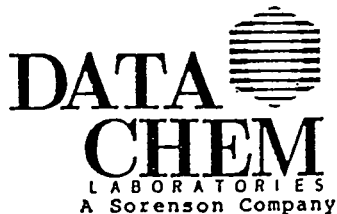
DCL Analysis Group: G952V04K
Analysis Method....: TCLP-8270A
Instrument Type....: GC/MS
Instrument ID.....: 5972-N
Column Type.....: DB-5 30mmX.32mm
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
m-Cresol and p-Cresol	25-MAR-95 02:16	.013	0.014	J		0.100
o-Cresol	25-MAR-95 02:16	.019	ND*			0.100
1,4-Dichlorobenzene	25-MAR-95 02:16	.012	ND*			0.100
2,4-Dinitrotoluene	25-MAR-95 02:16	.019	ND*			0.100
Hexachlorobenzene	25-MAR-95 02:16	.011	ND*			0.100
Hexachloro-1,3-butadiene	25-MAR-95 02:16	.011	ND*			0.100
Hexachloroethane	25-MAR-95 02:16	.017	ND*			0.100
Nitrobenzene	25-MAR-95 02:16	.012	ND*			0.100
Pentachlorophenol	25-MAR-95 02:16	.017	ND*			0.500
Pyridine	25-MAR-95 02:16	.014	ND*			0.100
2,4,5-Trichlorophenol	25-MAR-95 02:16	.026	ND*			0.100
2,4,6-Trichlorophenol	25-MAR-95 02:16	.028	ND*			0.100

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
2,4,6-Tribromophenol	1.62	2.00	81.1
2-Fluorobiphenyl	0.869	1.00	86.9
2-Fluorophenol	0.992	2.00	49.6
Nitrobenzene-d5	0.850	1.00	85.0
Phenol-d5	0.757	2.00	37.9
Terphenyl-d14	0.848	1.00	84.8



FORM A (TYPE I)
SINGLE METHOD ANALYSES

SAMPLE ANALYSIS DATA SHEET

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03299517330553
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Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-OR

DCL Preparation Group: G952Q012
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311/3510
Aliquot Weight/Volume: 100 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 17:33
Client Sample Name: A2-B-PILE
DCL Sample Name....: EO 1186

Matrix.....: SOIL
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952V04K
Analysis Method....: TCLP-8270A
Instrument Type....: GC/MS
Instrument ID.....: 5972-N
Column Type.....: DB-5 30mmX.32mm

☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
m-Cresol and p-Cresol	25-MAR-95 02:46	.013	ND*			0.100
o-Cresol	25-MAR-95 02:46	.019	ND*			0.100
1,4-Dichlorobenzene	25-MAR-95 02:46	.012	ND*			0.100
2,4-Dinitrotoluene	25-MAR-95 02:46	.019	ND*			0.100
Hexachlorobenzene	25-MAR-95 02:46	.011	ND*			0.100
Hexachloro-1,3-butadiene	25-MAR-95 02:46	.011	ND*			0.100
Hexachloroethane	25-MAR-95 02:46	.017	ND*			0.100
Nitrobenzene	25-MAR-95 02:46	.012	ND*			0.100
Pentachlorophenol	25-MAR-95 02:46	.017	ND*			0.500
Pyridine	25-MAR-95 02:46	.014	ND*			0.100
2,4,5-Trichlorophenol	25-MAR-95 02:46	.026	ND*			0.100
2,4,6-Trichlorophenol	25-MAR-95 02:46	.028	ND*			0.100

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
2,4,6-Tribromophenol	1.59	2.00	79.4
2-Fluorobiphenyl	0.943	1.00	94.3
2-Fluorophenol	1.09	2.00	54.5
Nitrobenzene-d5	0.935	1.00	93.5
Phenol-d5	0.810	2.00	40.5
Terphenyl-d14	0.868	1.00	86.8

TPH RESULTS



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03249509444738

Page 3

SAMPLE ANALYSIS DATA SHEET



S952J0DH

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-HR

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method...: EPA 3810
Aliquot Weight/Volume: 0.50 g
Net Weight/Volume....: Not Required

Date Printed.....: 24-MAR-95 09:44
Client Sample Name: A2-P-1
DCL Sample Name....: EO 1181

Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units...: mg/kg
Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952Q03R
Analysis Method...: EPA 8015mod
Instrument Type...: GC
Instrument ID.....: GC/VOA 05
Column Type.....: DB-624

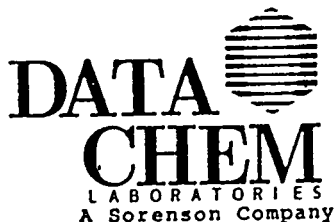
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
TPH-Gasoline	21-MAR-95 12:49	0.54	370		10	10

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
Bromobenzene	28.4	40.0	70.9



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03249509444738
Page 6

SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-HR

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method....: EPA 3810
Aliquot Weight/Volume: 0.50 g
Net Weight/Volume.....: Not Required

Date Printed.....: 24-MAR-95 09:44
Client Sample Name: A2-P-2
DCL Sample Name....: EO 1182

Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/kg
Report Basis.....: ☒ As Received ☐ Dried

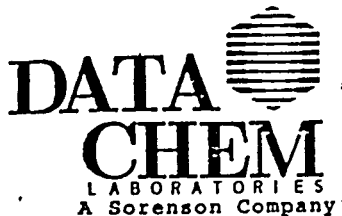
DCL Analysis Group: G952Q03R
Analysis Method....: EPA 8015mod
Instrument Type....: GC
Instrument ID.....: GC/VOA 05
Column Type.....: DB-624
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
TPH-Gasoline	21-MAR-95 14:19	0.54	530		10	10

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
Bromobenzene	35.0	40.0	87.6



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03249509444738
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SAMPLE ANALYSIS DATA SHEET

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-HR

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method....: EPA 3810
Aliquot Weight/Volume: 0.50 g
Net Weight/Volume.....: Not Required

Date Printed.....: 24-MAR-95 09:44

Client Sample Name: A2-P-3

DCL Sample Name....: EO 1183

Matrix.....: SLUDGE

Date Sampled.....: 13-MAR-95 00:00

Reporting Units....: mg/kg

Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952Q03R
Analysis Method....: EPA 8015mod
Instrument Type....: GC
Instrument ID.....: GC/VOA 05
Column Type.....: DB-624

☒ Primary

☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
TPH-Gasoline	21-MAR-95 14:50	0.54	590		10	10

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
Bromobenzene	34.9	40.0	87.3



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03229514573042
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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided
Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-IR

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method....: EPA 3810
Aliquot Weight/Volume: 5.0 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 22-MAR-95 14:57
Client Sample Name: A2-P-RINSE
DCL Sample Name....: EO 1184

Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952P018
Analysis Method....: EPA 8015mod
Instrument Type....: GC
Instrument ID.....: GC/VOA 05
Column Type.....: DB-624
☒ Primary
☐ Confirmation

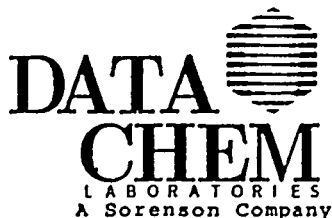
Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
TPH-Gasoline	22-MAR-95 02:44	0.042	0.15	J	1	1.0

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
Bromobenzene	4.00	4.00	100.

007



FORM A (TYPE I)
SINGLE METHOD ANALYSES

SAMPLE ANALYSIS DATA SHEET

Form RLIMS63A-V1.0
03229515361599
Page 8



S952J0FF

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-IR

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method....: EPA 3810
Aliquot Weight/Volume: 5.0 mL
Net Weight/Volume.....: Not Required

Date Printed.....: 22-MAR-95 15:36
Client Sample Name: A2-B-RINSE
DCL Sample Name....: EO 1185

Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952P018
Analysis Method....: EPA 8015mod
Instrument Type....: GC
Instrument ID.....: GC/VOA 05
Column Type.....: DB-624

☒ Primary
☐ Confirmation

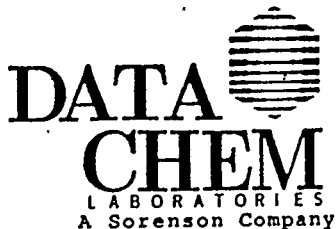
Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
TPH-Gasoline	22-MAR-95 04:15	0.042	1.9		1	1.0

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
Bromobenzene	3.54	4.00	88.5

010



FORM A (TYPE I)
SINGLE METHOD ANALYSES

SAMPLE ANALYSIS DATA SHEET

Form RLIMS63A-V1.0
03249509530422
Page 3



S952J09H

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided
Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-JR

DCL Preparation Group: Not Applicable
Date Prepared.....: Not Applicable
Preparation Method....: EPA 3810
Aliquot Weight/Volume: 5.0 g
Net Weight/Volume.....: Not Required

Date Printed.....: 24-MAR-95 09:53
Client Sample Name: A2-B-PILK
DCL Sample Name....: EO 1186
Matrix.....: SOIL
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/kg
Report Basis.....: ☒ As Received ☐ Dried

DCL Analysis Group: G952Q03R
Analysis Method....: EPA 8015mod
Instrument Type....: GC
Instrument ID.....: GC/VOA 05
Column Type.....: DB-624
☒ Primary
☐ Confirmation

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
TPH-Gasoline	20-MAR-95 21:07	0.054	ND*		1	1.0

Surrogate Recoveries

Analyte	Result	Spiked Amount	Percent Recovery
Bromobenzene	3.38	4.00	84.5



ANALYTICAL REPORT

Form ARF-AL

Page 1 of 2

Part 1 of 1

MAR 28 1995

Date

Agency Identification Number S95-0223-KR

Account No. 03018

REECO

P. O. Box 98521, M/S 713

Las Vegas, NV 89193-8521

Attention: Jerry Dugas

FAX (702) 295-7534

Telephone (702) 295-7220

Sampling Collection and Shipment

Sampling Site A2 Date of Collection March 13, 1995

Date Samples Received at Laboratory March 16, 1995

Analysis

Method of Analysis 8015 MOD

Date(s) of Analysis March 25, 1995

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	TPH-Diesel mg/kg	TPH-Oil mg/kg	o-Terphenyl mg/kg					
BL-52801-1	BL-52801-1	SLUDGE	ND*	ND*	35					
QC-52801-1	QC-52801-1	SLUDGE	410	NR	38					
A2-P-1	EO 1181	SLUDGE	12000	2800	**					
A2-P-2	EO 1182	SLUDGE	11000	2100	**					
A2-P-3	EO 1183	SLUDGE	18000	3300	**					
A2-P-3MS	EO 1183MS	SLUDGE	16000	NR	**					
A2-P-3MSD	EO 1183MSD	SLUDGE	15000	NR	**					
* Limit of Detection			20	20						

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

** See comment on last page.

() Parameter between LOD and LOQ.

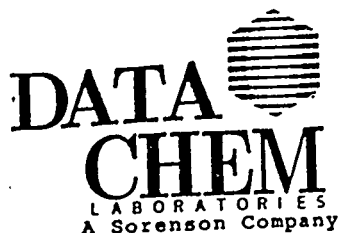
Analyst: Lawrence E. Miller

Reviewer: Daniel J. Bruch

Laboratory Supervisor: Daniel J. Bruch



METALS RESULTS



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03299514151760

Page 8



S952J0CK

SAMPLE ANALYSIS DATA SHEET

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-CR

DCL Preparation Group: G952P02K
Date Prepared.....: 22-MAR-95 00:00
Preparation Method....: 1311/3015
Aliquot Weight/Volume: Not Applicable
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 14:15

Client Sample Name: A2-P-1

DCL Sample Name....: EO 1181

Matrix.....: SLUDGE

Date Sampled.....: 13-MAR-95 00:00

Reporting Units....: mg/L

Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952P02K

Analysis Method....: 6010

Instrument Type....: ICP

Instrument ID.....: TJA ICAP 61 "C"

Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Arsenic/TCLP	27-MAR-95 00:00		ND*			0.50
Barium/TCLP	27-MAR-95 00:00		0.66			0.020
Cadmium/TCLP	27-MAR-95 00:00		0.025			0.010
Chromium/TCLP	27-MAR-95 00:00		ND*			0.020
Lead/TCLP	27-MAR-95 00:00		5.0			0.10
Selenium/TCLP	27-MAR-95 00:00		ND*			0.30
Silver/TCLP	27-MAR-95 00:00		ND*			0.020



FORM A (TYPE I)
SINGLE METHOD ANALYSES

SAMPLE ANALYSIS DATA SHEET

Form RLIMS63A-V1.0
03279515564310
Page 8



Client Name..... REECO
Client Ref Number..... Not Provided
Sampling Site..... A2
Release Number..... Not Provided

Date Received..... 16-MAR-95 00:00
DCL Client Group..... S95-0223-DR

DCL Preparation Group: G952Q005
Date Prepared..... 23-MAR-95 00:00
Preparation Method.... 1311
Aliquot Weight/Volume: 50ml
Net Weight/Volume.... Not Required

Date Printed..... 27-MAR-95 15:56
Client Sample Name: A2-P-1
DCL Sample Name.... EO 1181

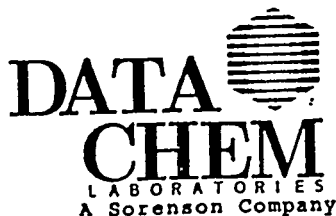
Matrix..... SLUDGE
Date Sampled..... 13-MAR-95 00:00
Reporting Units.... mg/L
Report Basis..... ☐ As Received ☐ Dried

DCL Analysis Group: G952V02F
Analysis Method.... 7470
Instrument Type.... CVAA
Instrument ID..... AAS-CVC
Column Type..... Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Mercury/TCLP	24-MAR-95 11:47		ND*		2	0.0002

010



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03299514151760
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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-CR

DCL Preparation Group: G952P02K
Date Prepared.....: 22-MAR-95 00:00
Preparation Method....: 1311/3015
Aliquot Weight/Volume: Not Applicable
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 14:15
Client Sample Name: A2-P-2
DCL Sample Name....: EO 1182

Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952P02K
Analysis Method....: 6010
Instrument Type....: ICP
Instrument ID.....: TJA ICAP 61 "C"
Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Arsenic/TCLP	27-MAR-95 00:00		ND*			0.50
Barium/TCLP	27-MAR-95 00:00		0.66			0.020
Cadmium/TCLP	27-MAR-95 00:00		0.023			0.010
Chromium/TCLP	27-MAR-95 00:00		ND*			0.020
Lead/TCLP	27-MAR-95 00:00		4:3			0.10
Selenium/TCLP	27-MAR-95 00:00		ND*			0.30
Silver/TCLP	27-MAR-95 00:00		ND*			0.020



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03279515564310

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SAMPLE ANALYSIS DATA SHEET



S952J0D1

Client Name..... REECO
Client Ref Number..... Not Provided
Sampling Site..... A2
Release Number..... Not Provided

Date Received..... 16-MAR-95 00:00
DCL Client Group..... S95-0223-DR

DCL Preparation Group: G952Q005
Date Prepared..... 23-MAR-95 00:00
Preparation Method.... 1311
Aliquot Weight/Volume: 50ml
Net Weight/Volume..... Not Required

Date Printed..... 27-MAR-95 15:56

Client Sample Name: A2-P-2

DCL Sample Name.... EO 1182

Matrix..... SLUDGE

Date Sampled..... 13-MAR-95 00:00

Reporting Units.... mg/L

Report Basis..... ☐ As Received ☐ Dried

DCL Analysis Group: G952V02F

Analysis Method.... 7470

Instrument Type.... CVAA

Instrument ID..... AAS-CVC

Column Type..... Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Mercury/TCLP	24-MAR-95 11:52	.	ND*		2	0.0002

013



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03299514151760
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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-CR

DCL Preparation Group: G952P02K
Date Prepared.....: 22-MAR-95 00:00
Preparation Method....: 1311/3015
Aliquot Weight/Volume: Not Applicable
Net Weight/Volume.....: Not Required

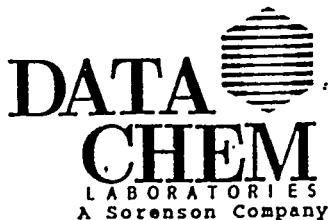
Date Printed.....: 29-MAR-95 14:15
Client Sample Name: A2-P-3
DCL Sample Name....: EO 1183

Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952P02K
Analysis Method....: 6010
Instrument Type....: ICP
Instrument ID.....: TJA ICAP 61 "C"
Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Arsenic/TCLP	27-MAR-95 00:00		ND*			0.50
Barium/TCLP	27-MAR-95 00:00		0.84			0.020
Cadmium/TCLP	27-MAR-95 00:00		0.022			0.010
Chromium/TCLP	27-MAR-95 00:00		ND*			0.020
Lead/TCLP	27-MAR-95 00:00		4.8			0.10
Selenium/TCLP	27-MAR-95 00:00		ND*			0.30
Silver/TCLP	27-MAR-95 00:00		ND*			0.020



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03279515564310
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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided
Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-DR

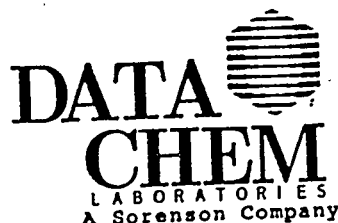
DCL Preparation Group: G952Q005
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311
Aliquot Weight/Volume: 50ml
Net Weight/Volume.....: Not Required

Date Printed.....: 27-MAR-95 15:56
Client Sample Name: A2-P-3
DCL Sample Name....: EO 1183
Matrix.....: SLUDGE
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952V02F
Analysis Method....: 7470
Instrument Type....: CVAA
Instrument ID.....: AAS-CVC
Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Mercury/TCLP	24-MAR-95 11:53		ND*		2	0.0002



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03299514151760

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SAMPLE ANALYSIS DATA SHEET

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-CR

DCL Preparation Group: G952P02K
Date Prepared.....: 22-MAR-95 00:00
Preparation Method....: 1311/3015
Aliquot Weight/Volume: Not Applicable
Net Weight/Volume....: Not Required

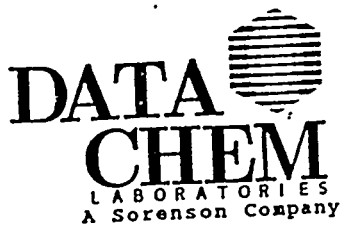
Date Printed.....: 29-MAR-95 14:15
Client Sample Name: A2-P-RIMSK
DCL Sample Name....: EO 1184

Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952P02K
Analysis Method....: 6010
Instrument Type....: ICP
Instrument ID.....: TJA ICAP 61 "C"
Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Arsenic/TCLP	27-MAR-95 00:00		ND*			0.50
Barium/TCLP	27-MAR-95 00:00		0.11			0.020
Cadmium/TCLP	27-MAR-95 00:00		ND*			0.010
Chromium/TCLP	27-MAR-95 00:00		ND*			0.020
Lead/TCLP	27-MAR-95 00:00		ND*			0.10
Selenium/TCLP	27-MAR-95 00:00		ND*			0.30
Silver/TCLP	27-MAR-95 00:00		ND*			0.020



FORM A (TYPE 1)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03279515564310

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SAMPLE ANALYSIS DATA SHEET

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided
Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-DR

Date Printed.....: 27-MAR-95 15:56
Client Sample Name: A2-P-RIMSE
DCL Sample Name....: EO 1184
Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

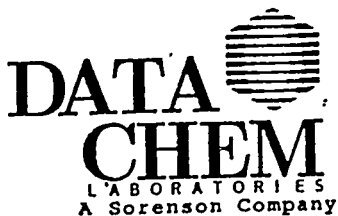
DCL Analysis Group: G952V02F
Analysis Method....: 7470
Instrument Type....: CVAA
Instrument ID.....: AAS-CVC
Column Type.....: Not Applicable

DCL Preparation Group: G952Q005
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311
Aliquot Weight/Volume: 50ml
Net Weight/Volume.....: Not Required

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Mercury/TCLP	24-MAR-95 11:58		ND*		2	0.0002

015



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03299514151760
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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided
Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-CR
DCL Preparation Group: G952P02K
Date Prepared.....: 22-MAR-95 00:00
Preparation Method....: 1311/3015
Aliquot Weight/Volume: Not Applicable
Net Weight/Volume.....: Not Required

Date Printed.....: 29-MAR-95 14:15
Client Sample Name: A2-B-RINSE
DCL Sample Name....: EO 1185
Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952P02K
Analysis Method....: 6010
Instrument Type....: ICP
Instrument ID.....: TJA ICAP 61 "C"
Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Arsenic/TCLP	27-MAR-95 00:00		ND*			0.50
Barium/TCLP	27-MAR-95 00:00		0.12			0.020
Cadmium/TCLP	27-MAR-95 00:00		ND*			0.010
Chromium/TCLP	27-MAR-95 00:00		ND*			0.020
Lead/TCLP	27-MAR-95 00:00		ND*			0.10
Selenium/TCLP	27-MAR-95 00:00		ND*			0.30
Silver/TCLP	27-MAR-95 00:00		ND*			0.020



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
03279515564310
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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-DR

DCL Preparation Group: G952Q005
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311
Aliquot Weight/Volume: 50ml
Net Weight/Volume.....: Not Required

Date Printed.....: 27-MAR-95 15:56
Client Sample Name: A2-B-RINSE
DCL Sample Name...: EO 1185

Matrix.....: WATER
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952V02F
Analysis Method....: 7470
Instrument Type....: CVAA
Instrument ID.....: AAS-CVC
Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Mercury/TCLP	24-MAR-95 12:03		ND*		2	0.0002

018



FORM A (TYPE I)
SINGLE METHOD ANALYSES

Form RLIMS63A-V1.0
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SAMPLE ANALYSIS DATA SHEET



Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-CR

DCL Preparation Group: G952P02K
Date Prepared.....: 22-MAR-95 00:00
Preparation Method.....: 1311/3015
Aliquot Weight/Volume: Not Applicable
Net Weight/Volume.....: Not Required

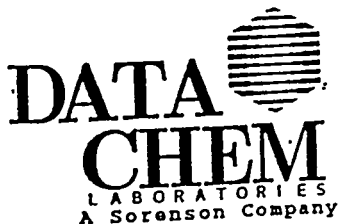
Date Printed.....: 29-MAR-95 14:15
Client Sample Name: A2-B-PILE
DCL Sample Name....: EO 1186

Matrix.....: SOIL
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

DCL Analysis Group: G952P02K
Analysis Method....: 6010
Instrument Type....: ICP
Instrument ID.....: TJA ICAP 61 "C"
Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Arsenic/TCLP	27-MAR-95 00:00		ND*			0.50
Barium/TCLP	27-MAR-95 00:00		0.75			0.020
Cadmium/TCLP	27-MAR-95 00:00		ND*			0.010
Chromium/TCLP	27-MAR-95 00:00		ND*			0.020
Lead/TCLP	27-MAR-95 00:00		ND*			0.10
Selenium/TCLP	27-MAR-95 00:00		ND*			0.30
Silver/TCLP	27-MAR-95 00:00		ND*			0.020



FORM A (TYPE I)
SINGLE METHOD ANALYSES

SAMPLE ANALYSIS DATA SHEET

Form RLIMS63A-V1.0
03279515564310

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S952J0D7

Client Name.....: REECO
Client Ref Number.....: Not Provided
Sampling Site.....: A2
Release Number.....: Not Provided

Date Received.....: 16-MAR-95 00:00
DCL Client Group.....: S95-0223-DR

DCL Preparation Group: G952Q005
Date Prepared.....: 23-MAR-95 00:00
Preparation Method....: 1311
Aliquot Weight/Volume: 50ml
Net Weight/Volume.....: Not Required

Date Printed.....: 27-MAR-95 15:56
Client Sample Name: A2-B-PILE
DCL Sample Name....: EO 1186

Matrix.....: SOIL
Date Sampled.....: 13-MAR-95 00:00
Reporting Units....: mg/L
Report Basis.....: ☐ As Received ☐ Dried

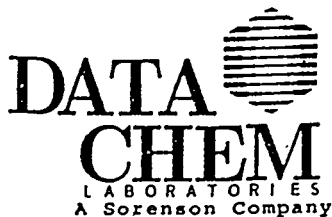
DCL Analysis Group: G952V02F
Analysis Method....: 7470
Instrument Type....: CVAA
Instrument ID.....: AAS-CVC
Column Type.....: Not Applicable

Analytical Results

Analyte	Date Analyzed	MDL	Result	Flag	Dilution	CRDL
Mercury/TCLP	24-MAR-95 12:04		ND*		2	0.0002

019

FLASHPOINT/IGNITABILITY RESULTS



ENVIRONMENTAL WASTE REPORT

Form EPRG-A

Page 1 of 2

Part 1 of 1

Date MAR 23 1995
Agency Identification Number S95-0223-ER
Account No. 03018

95-03-022

REECO
P. O. Box 98521, M/S 713
Las Vegas, NV 89193-8521
Attention: Jerry Dugas

FAX (702) 295-7534
Telephone (702) 295-7220

Sampling Collection and Shipment

Sampling Site A2 Date of Collection March 13, 1995Date Samples Received at Laboratory March 16, 1995

Analytical Results

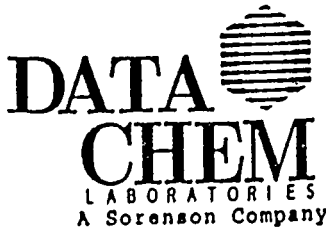
Parameter Name	Field Number	Lab Number	A2-P-1	A2-P-1MD	A2-P-2	A2-P-3			Limit of Detection
Analysis Date Units			EO 1181	EO 1181MD	EO 1182	EO 1183			
Method Prep Method									
Ignitability									
03/21/1995			NI	NI	NI	NI			
7.1.2.2 [1]									

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
† Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
{ } Parameter between LOD and LOQ.
{ } Method Reference (See comments page.)

Michael E. Richmond
Analyst: Michael E. Richmond

Matt Fisher
Reviewer: Matt Fisher



ENVIRONMENTAL WATER REPORT

Form EPRW-A

Page 1 of 2
Part 1 of 1

MAR 23 1995

Date _____

Agency Identification Number S95-0223-FR

Account No. 03018

95-03-022

REECO

P. O. Box 98521, M/S 713

Las Vegas, NV 89193-8521

Attention: Jerry Dugas

FAX (702) 295-7534

Telephone (702) 295-7220

Sampling Collection and Shipment

Sampling Site A2 Date of Collection March 13, 1995

Date Samples Received at Laboratory March 16, 1995

Analytical Results

Parameter Name	Analysis Date	Units	Method	Prep Method	Field Number	Lab Number	QC-52534-1	QC-52534-1	A2-P-RINSE	EO 1184	A2-P-RINSEMD	EO 1184MD	A2-B-RINSE	EO 1185	Limit of Detection
Flash Point	03/21/1995	°C	1010 [1]				32		>67		>67		>67		+ 2

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
{ } Parameter between LOD and LOQ.
{ } Method Reference (See comments page.)

Analyst: Michael E. Richmond

Reviewer: Penny A. Dearden



ENVIRONMENTAL SOIL REPORT

Form EPRS-A

Page 1 of 2

Part 1 of 1

MAR 23 1995

Date

Agency Identification Number S95-0223-GR

Account No. 03018

95-03-022

w/o# 3754-040

REECO

P. O. Box 98521, M/S 713

Las Vegas, NV 89193-8521

Attention: Jerry Dugas

FAX (702) 295-7534

Telephone (702) 295-7220

Sampling Collection and Shipment

Sampling Site A2 Date of Collection March 13, 1995

Date Samples Received at Laboratory March 16, 1995

Analytical Results

Parameter Name	Field Number	A2-B-PILE	A2-B-PILEMD						Limit of Detection
Analysis Date Units	Lab Number	EO 1186	EO 1186MD						
Method Prep Method									
Ignitability		NI	NI						
03/21/1995									
7.1.2.2 [1]									

† See comment on last page.

ND Parameter not detected.

NR Parameter not requested.

* Analyses completed on or before this date.

** Parameter not analyzed (See comment page).

{ } Parameter between LOD and LOQ.

{ } Method Reference (See comments page.)

Analyst: Michael W. Richmond

Reviewer: Matt Fisher

This report is 3
total pages.

RC RESULTS

Reynolds Electrical & Engineering Co., Inc.

ANALYTICAL SERVICES DEPARTMENT
P.O. Box 98521, Las Vegas, NV 89193-8521

Page 1

Reported to: ERTD (J. Smith)
M/S 969

Report Date: 3-APR-95
Sample Delivery Group: T085
Batch: 0701
Program: 720

Report No. : FY95-720-021

Sample Identification	Isotope	Analysis	Result	Error %	Qual Flag	Detection Limit	Result Units	Analysis Date	Sample Date	Size	Size Units	Type Matrix	Tracer Yield %	Spike Recv %	System Detector	Packet/Item Sample
A2-B-1LE	K 40	GAM20	1.86E+01	1.8E+01		7.9E-01	pCi/g	03-14-95	03-13-95	7.47E+02	gm	SOIL G			07-01	G1894-0-25120
A2-B-2LE	RA226	GAM20	8.86E-01	3.0E+01		1.5E-01	pCi/g	03-14-95	03-13-95	7.47E+02	gm	SOIL G			07-01	G1894-0-25120
A2-B-3LE	TH228	GAM20	1.32E+00	2.6E+01		1.3E-01	pCi/g	03-14-95	03-13-95	7.47E+02	gm	SOIL G			07-01	G1894-0-25120
A2-B-4LE	TH232	GAM20	1.46E+00	3.5E+01		3.1E-01	pCi/g	03-14-95	03-13-95	7.47E+02	gm	SOIL G			07-01	G1894-0-25120
A2-B-RHISE	No Nucl Det	GAM20	0.00E+00	0.0E+00	U	0.0E+00	NA	03-14-95	03-13-95	4.94E+02	ml	Water			07-01	G1893-1-84868
A2-P-1	AC228	GAM20	1.30E+00	3.2E+01		2.1E-01	pCi/g	03-14-95	03-13-95	8.88E+02	gm	Misc			07-01	G1892-0-84864
A2-P-1	BI212	GAM20	1.71E+00	6.3E+01		9.6E-01	pCi/g	03-14-95	03-13-95	8.88E+02	gm	Misc			07-01	G1892-0-84864
A2-P-1	BI214	GAM20	1.01E+00	3.0E+01		1.6E-01	pCi/g	03-14-95	03-13-95	8.88E+02	gm	Misc			07-01	G1892-0-84864
A2-P-1	CS137	GAM20	3.36E-01	3.2E+01		5.4E-02	pCi/g	03-14-95	03-13-95	8.88E+02	gm	Misc			07-01	G1892-0-84864
A2-P-1	K 40	GAM20	1.83E+01	1.8E+01		7.8E-01	pCi/g	03-14-95	03-13-95	8.88E+02	gm	Misc			07-01	G1892-0-84864

Note: % Error is the 2.0 Sigma Error

Qualification Flags:

E = Estimated Quantity
H = High Recovery for Sample
J = Result is less than the RDL
L = Low Recovery for Sample
P = Preliminary Results
Q = Bad Instrument Quality Control, Result is OK
R = Results are Unusable, Resampling is Necessary
U = Result is less than Minimum Detectable Activity

Comment:
GAM20 = 20 Min. Gamma Scan

Prepared by: ED. P. P. P. Date: 4/3/95

Approved by: C. J. J. J. Date: 4/3/95

(Level 1)

Reynolds Electrical & Engineering Co., Inc.

ANALYTICAL SERVICES DEPARTMENT
P.O. Box 98521, Las Vegas, NV 89193-8521

Reported to: ERTD (J. Smith)
M/S 969

Report Date: 3-APR-95
Sample Delivery Group: T085
Batch: 0701
Program: 720

Report No.: FY95-720-021

Sample Identification	Isotope	Analysis	Result	Error %	Qual Flag	Detection Limit	Result Units	Analysis Date	Sample Date	Size	Size Units	Type Matrix	Tracer Yield %	Spike Recv %	System Detector	Packet-Item Sample
A2-P-1	PB212	GAM20	1.46E+00	2.3E+01		1.7E-01	pCi/g	03-14-95	03-13-95	8.88E+02	gm	Misc			07-01	G1892-0-84864
A2-P-2	PB214	GAM20	1.08E+00	3.4E+01		2.2E-01	pCi/g	03-14-95	03-13-95	8.88E+02	gm	Misc			07-01	G1892-0-84864
A2-P-3	TL208	GAM20	4.12E-01	3.2E+01		7.5E-02	pCi/g	03-14-95	03-13-95	8.88E+02	gm	Misc			07-01	G1892-0-84864
A2-P-4	AC228	GAM20	1.32E+00	3.3E+01		2.5E-01	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865
A2-P-5	BI212	GAM20	1.96E+00	5.4E+01		9.0E-01	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865
A2-P-6	BI214	GAM20	1.08E+00	3.1E+01		1.9E-01	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865
A2-P-7	CO60	GAM20	6.76E-02	9.5E+01		6.8E-02	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865
A2-P-8	CS137	GAM20	2.63E-01	4.6E+01		8.4E-02	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865
A2-P-9	K 40	GAM20	1.76E+01	1.8E+01		7.8E-01	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865
A2-P-10	PB212	GAM20	1.40E+00	2.5E+01		1.8E-01	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865

Note: % Error is the 2.0 Sigma Error

Qualification Flags:

E = Estimated Quantity
H = High Recovery for Sample
J = Result is less than the RDL
L = Low Recovery for Sample
P = Preliminary Results
Q = Bad Instrument Quality Control, Result is OK
R = Results are Unusable, Resampling is Necessary
U = Result is less than Minimum Detectable Activity

Comment:
GAM20 = 20 Min. Gamma Scan

Prepared by: E. D. Vire Date: 4/3/95

Approved by: C. J. Starnes Date: 4/3/95

Reynolds Electrical & Engineering Co., Inc.

ANALYTICAL SERVICES DEPARTMENT
P.O.Box 98521, Las Vegas, NV 89193-8521

Page 3

Reported to: ERTD (J. Smith)
M/S 969

Report Date: 3-APR-95
Sample Delivery Group: T085
Batch: 0701
Program: 720

Report No.: FY95-720-021

Sample Identification	Isotope	Analysis	Result	Error %	Qual Flag	Detection Limit	Result Units	Analysis Date	Sample Date	Size	Size Units	Type Matrix	Tracer Yield %	Spike Recv %	System Detector	Packet-Item Sample
A2-P-2	PB214	GAM20	1.06E+00	3.6E+01		2.4E-01	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865
A2-P-3	TL208	GAM20	4.22E-01	3.2E+01		7.9E-02	pCi/g	03-14-95	03-13-95	7.92E+02	gm	Misc			07-01	G1892-1-84865
A2-P-3	AC228	GAM20	1.13E+00	3.3E+01		2.0E-01	pCi/g	03-14-95	03-13-95	7.77E+02	gm	Misc			07-01	G1892-2-84866
A2-P-3	BI214	GAM20	8.16E-01	3.4E+01		1.7E-01	pCi/g	03-14-95	03-13-95	7.77E+02	gm	Misc			07-01	G1892-2-84866
A2-P-3	CS137	GAM20	3.94E-01	3.2E+01		7.2E-02	pCi/g	03-14-95	03-13-95	7.77E+02	gm	Misc			07-01	G1892-2-84866
A2-P-3	K 40	GAM20	1.24E+01	2.1E+01		7.9E-01	pCi/g	03-14-95	03-13-95	7.77E+02	gm	Misc			07-01	G1892-2-84866
A2-P-3	PB212	GAM20	1.15E+00	2.6E+01		1.6E-01	pCi/g	03-14-95	03-13-95	7.77E+02	gm	Misc			07-01	G1892-2-84866
A2-P-3	PB214	GAM20	8.25E-01	3.8E+01		2.0E-01	pCi/g	03-14-95	03-13-95	7.77E+02	gm	Misc			07-01	G1892-2-84866
A2-P-3	TL208	GAM20	2.90E-01	3.9E+01		7.4E-02	pCi/g	03-14-95	03-13-95	7.77E+02	gm	Misc			07-01	G1892-2-84866
A2-P-1(INSE	BI214	GAM20	2.03E+02	8.2E+01	U	1.6E+02	pCi/L	03-14-95	03-13-95	4.67E+02	ml	Water			07-01	G1893-0-84867

Note: % Error is the 2.0 Sigma Error

Qualification Flags:

- E = Estimated Quantity
- H = High Recovery for Sample
- J = Result is less than the RDL
- L = Low Recovery for Sample
- P = Preliminary Results
- Q = Bad Instrument Quality Control, Result is OK
- R = Results are Unusable, Resampling is Necessary
- U = Result is less than Minimum Detectable Activity

Comment:
GAM20 = 20 Min. Gamma Scan

Prepared by: E. D. V. C. Date: 4/3/95

Approved by: C. J. L. L. L. L. Date: 4/3/95

(Level 1)

Reynolds Electrical & Engineering Co., Inc.

ANALYTICAL SERVICES DEPARTMENT
P.O. Box 98521, Las Vegas, NV 89193-8521

Page 4

Reported to: ERTD (J. Smith)
M/S 969

Report Date: 3-APR-95
Sample Delivery Group: T085
Batch: 0701
Program: 720

Report No.: FY95-720-021

Sample Identification	Isotope	Analysis	Result	Error %	Qual Flag	Detection Limit	Result Units	Analysis Date	Sample Date	Size	Size Units	Type Matrix	Tracer Yield %	Spike Recv %	System Detector	Packet-Item Sample
A2-P-11N-SE	PB214	GAM20	2.90E+02	7.2E+01		1.8E+02	pCi/L	03-14-95	03-13-95	4.67E+02	ml	Water			07-01	G1893-0-84867
A2-P-11N-SE	TL208	GAM20	7.85E+01	9.0E+01	U	7.1E+01	pCi/L	03-14-95	03-13-95	4.67E+02	ml	Water			07-01	G1893-0-84867
QA BKG EMPTY BTL U07	No Nucl Det	GAM20	0.00E+00	0.0E+00		0.0E+00	NA	03-14-95	02-01-95	1.00E+00	sm	SOIL G			07-01	Q0275-0-00013
QA SF-NAS-A2378	AM241	GAM20	1.99E-01	1.1E+01		5.4E-03	uCi	03-14-95	07-01-94	9.00E+02	sm	QUAL		105.8	07-01	Q0274-4-13468
QA SF-NAS-A2378	CO60	GAM20	2.65E-01	7.9E+00		8.0E-04	uCi	03-14-95	07-01-94	9.00E+02	sm	QUAL		102.5	07-01	Q0274-4-13468
QA SF-NAS-A2378	CS137	GAM20	2.03E-01	8.0E+00		8.4E-04	uCi	03-14-95	07-01-94	9.00E+02	sm	QUAL		101.5	07-01	Q0274-4-13468

Note: % Error is the 2.0 Sigma Error

Qualification Flags:

- E = Estimated Quantity
- H = High Recovery for Sample
- J = Result is less than the RDL
- L = Low Recovery for Sample
- P = Preliminary Results
- Q = Bad Instrument Quality Control, Result is OK
- R = Results are Unusable, Resampling is Necessary
- U = Result is less than Minimum Detectable Activity

Comments:
GAM20 = 20 Min. Gamma Scan

Prepared by: E.D. Vail Date: 4/3/95

Approved by: C. A. Stenmark Date: 4/3/95

***** End of Report *****

(Level 1)



TODAY'S DATE:

ASD/Sample Management Section

PROJECT INFORMATION										REPORT INFORMATION										LAB USE ONLY									
WORK ORDER PROJECT MANAGER PHONE MAIL STOP LOCATION										DATE DUE PRELIMINARY REPORT COPY TO PROJECT MANAGER										PACKET # REMARKS PROJECT NO EVENT SAMPLER INITIALS									
Jeff Smith 7775 Area 2										Normal Yes Jeff Smith JERRY DUGAS M/S 713										95-03-022 68936/894 8270									
FIELD SAMPLE ID										DATE/TIME COLLECTED										REMARKS									
A2-P-1										3/13/95-1215										TPH - full scan; Gamma 20-minute									
A2-P-2										3/13/95-1230																			
A2-P-3										3/13/95-1315																			
A2-P-RINSE										3/13/95-1345																			
A2-B-RINSE										3/13/95-1415																			
A2-B-PILE										3/13/95-1445																			
95EVO313-1										3/13/95-1000										TRUE BLANK									
																				135/MSD per worksheet									
SAMPLE RECEIVED BY:										DATE/TIME:										RECEIVED BY:									
Jeff Smith										3/14/95 @ 0805										CD Cantareuda									
CD Cantareuda										3/14/95 @ 0805										CD Cantareuda									
CD Cantareuda (TPH TO CPOA BUT NOT ATES) (Floyd)										3/15/95 @ 1200										Federal Express									

JULY 31, 1996

***POSTSHOT CONTAINMENT SHOP INJECTION WELL
SUMP WATER SAMPLE
(592-602/603)***

Bechtel Nevada

Interoffice Memorandum

To: S. J. Nacht

Date: August 29, 1996

From: A. R. Latham
Analytical Services Laboratory, 295-7472

No.: E100-AS-96-1403

Subject: **DATA REPORT FOR SAMPLE
DELIVERY GROUP (SDG) V068**

Enclosed are Quanterra Environmental Services' results, requested by J. L. Smith, for the total petroleum hydrocarbons (gasoline, diesel, oil) and metals analyses of one sample collected on July 31, 1996, in Area 2.

SPECIFIC:

Total Petroleum Hydrocarbons (Gasoline, Diesel, Oil)

GASOLINE - Method associated quality assurance and control criteria were met.

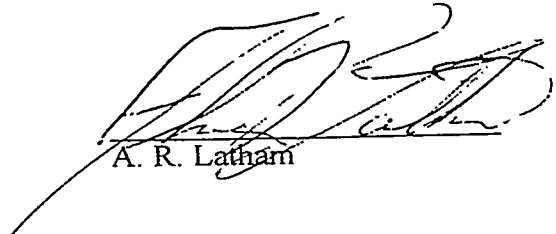
DIESEL/OIL - Method associated quality assurance and control criteria were met. An unidentified hydrocarbon was reported at a concentration of 94 mg/L. Analysis of the sample produced a chromatogram similar in pattern to a diesel/oil mixture, however, the component's elution window fell between that for the lab's diesel and oil standards'.

Metals

METALS - Method associated quality assurance and control criteria were met. Amounts of arsenic, barium, cadmium, chromium, and lead were quantitated. Results qualified with a "B" indicate the amount was between the Instrument Detection Limit and the Practical Quantitation Limit.

MERCURY - Method associated quality assurance and control criteria were met.

Please direct any questions you may have to your Client Service Representative, Ted Redding, at 295-7220.



A. R. Latham

ARL:bv
Subject Code: MHS 1107

Enclosures: as stated

Correspondence Control, w/o encs., M/S NLV008
K. A. Mobley, w/o encs., M/S NLV022
J. L. Smith, w/encs., M/S NTS 306
ASL SDG V068, w/encs., M/S NTS 273

**TOTAL
PETROLEUM
HYDROCARBON
RESULTS**

1D
LBH ANALYSIS DATA SHEET

EPA SAMPLE NO.

592-602-603

Lab Name: Quanterra, MO

Contract: 625.01

Lab Code: ITMO Case No.: _____

SAS No.: _____ SDG No.: V068

Matrix : (soil/water) WATER

Lab Sample ID: 11757-001

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: _____

Level: (low/med) LOW

Date Sampled: 07-31-96

% Moisture: not dec. _____

Date Analyzed: 08-13-96

Dilution Factor: 1.0

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	<u>Q</u>
---------	----------	---	----------

LBH (1)	100	U
--	----------------	--------------

- U: Concentration of analyte is less than the value given.
 X: Pattern reasonably matches gasoline
 Y: Pattern appears to be multi-peaks, but does not match gasoline
 Z: Concentration is primarily from a single peak

(1): Low Boiling Hydrocarbon (LBH) is quantitated as if it is Gasoline.

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.

592-602-603

Lab Name: QUANTERRA MO

Contract: 625.01

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: V068

Matrix : (soil/water) WATER

Lab Sample ID: 11757-001

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: _____

Level: (low/med) LOW

Date Sampled: 07-31-96

% Moisture: not dec. _____ dec. _____

Date Extracted: 08-14-96

Extraction: (SepF/Cont/Sonc/Shak) SEPF

Date Analyzed: 08-16-96

GPC Cleanup: (Y/N) N pH: _____

Dilution Factor: 5

CAS NO.

Compound

CONCENTRATION UNITS:
(mg/L or mg/Kg) mg/L

Q

<u>DIESEL</u>	<u>0.5</u>	<u>U *</u>
<u>WASTE OIL</u>	<u>0.5</u>	<u>U</u>

U: Concentration of analyte is less than the value given.

*: Unknown hydrocarbon detected at a conc. of 94 mg/L.

**TOTAL
METALS
RESULTS**

1

INORGANIC ANALYSES DATA SHEET

592-602-603

% Solids: 0.0

Comments:

AUGUST 6, 1996

***BITCUTTER SHOP INSIDE INJECTION WELL
SLUDGE SAMPLE
(A2-BIT)***



Interoffice Memorandum

To: S. J. Nacht

Date: September 10, 1996

From: A. R. Latham
Analytical Services Laboratory, 295-7472

No.: E100-AS-96-1474

Subject: DATA REPORT FOR SAMPLE
DELIVERY GROUPS (SDG) V074, U605

Enclosed are Quanterra Environmental Services' results, requested by J. L. Smith, for the volatile organics, total petroleum hydrocarbons (gasoline, diesel, oil), TCLP metals, and flashpoint analyses of one sample and the volatile organics analysis of one trip blank collected on August 6-7, 1996, in Area 2. Also enclosed are Analytical Services Laboratory's results for the gamma analysis of the sample including Statements of Services which indicate the charge number associated with these SDGs.

SPECIFIC:

Volatile Organics

Method associated quality assurance and control criteria were met. An amount of 2-butanone was quantitated in the trip blank, but was not seen in the method blank or sample.

Total Petroleum Hydrocarbons (Gasoline, Diesel, Oil)

GASOLINE - Method associated quality assurance and control criteria were met. Analysis of the sample produced a significant peak pattern. However, it did not match that of the gasoline standard. The laboratory qualified the result as not matching gasoline.

DIESEL/OIL - Method associated quality assurance and control criteria were met. The laboratory reported that an unknown hydrocarbon was present at 160,000 mg/Kg. Inspection of the chromatogram shows that the component elutes prior to diesel.

TCLP Metals

METALS - Method associated quality assurance and control criteria were met. Amounts of barium, cadmium, chromium, and lead were quantitated in the sample.

MERCURY - Method associated quality assurance and control criteria were met.

Flashpoint

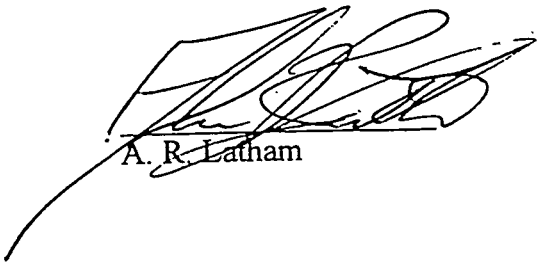
Method associated quality assurance and control criteria were met.

E100-AS-96-1474
S. J. Nacht
Page 2 of 2
September 10, 1996

Gamma

Method associated quality assurance and control criteria were met. Refer to SDG U605 when requesting information regarding this analysis.

Please direct any questions you may have to your Client Service Representative, Ted Redding, at 295-7220.



A. R. Latham

ARL:bv
Subject Code: MHS 1107

Enclosures: as stated

cc w/o encls.
Correspondence Control, M/S NLV008
K. A. Mobley, M/S NLV022

cc w/encls.
J. L. Smith, M/S NTS 306
ASL SDG V074, M/S NTS 273
ASL SDG U605, M/S NTS 273



**VOLATILE
ORGANICS
RESULTS**

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

A2-BIT

Lab Name: QUANTERRA MO

Contract: 625-01

Lab Code: ITMO

Case No.: V76102

SAS No.:

SDG No.: V074

Matrix: (soil/water) SOIL

Lab Sample ID: 11761-002

Sample wt/vol: 4.00 (g/mL) G

Lab File ID: B0051

Level: (low/med) MED

Date Received: 08/09/96

% Moisture: not dec.

Date Analyzed: 08/13/96

GC Column: RTX-502.2 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL)

Soil Aliquot Volume: 20.0(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
---------	----------	---	---

74-87-3-----	Chloromethane	6200	U
74-83-9-----	Bromomethane	6200	U
75-01-4-----	Vinyl Chloride	6200	U
75-00-3-----	Chloroethane	6200	U
75-09-2-----	Methylene Chloride	5000	B
67-64-1-----	Acetone	7500	BJ
75-15-0-----	Carbon Disulfide	3100	U
75-35-4-----	1,1-Dichloroethene	3100	U
75-34-3-----	1,1-Dichloroethane	3100	U
540-59-0-----	1,2-Dichloroethene (total)	3100	U
67-66-3-----	Chloroform	3100	U
107-06-2-----	1,2-Dichloroethane	3100	U
78-93-3-----	2-Butanone	12000	U
71-55-6-----	1,1,1-Trichloroethane	3100	U
56-23-5-----	Carbon Tetrachloride	3100	U
75-27-4-----	Bromodichloromethane	3100	U
78-87-5-----	1,2-Dichloropropane	3100	U
10061-01-5-----	cis-1,3-Dichloropropene	3100	U
79-01-6-----	Trichloroethene	3100	U
124-48-1-----	Dibromochloromethane	3100	U
79-00-5-----	1,1,2-Trichloroethane	3100	U
71-43-2-----	Benzene	3100	U
10061-02-6-----	trans-1,3-Dichloropropene	3100	U
75-25-2-----	Bromoform	3100	U
108-10-1-----	4-Methyl-2-Pentanone	12000	U
591-78-6-----	2-Hexanone	12000	U
127-18-4-----	Tetrachloroethene	1900	J
79-34-5-----	1,1,2,2-Tetrachloroethane	3100	U
108-88-3-----	Toluene	3100	U
108-90-7-----	Chlorobenzene	3100	U
100-41-4-----	Ethylbenzene	3100	U
100-42-5-----	Styrene	3100	U
1330-20-7-----	Xylene (total)	3100	U

TCLP
METALS
RESULTS

1
INORGANIC ANALYSES DATA SHEET

A2-BIT

Concentration Units (ug/L or mg/kg dry weight): UG/L_

[illegible]

Comments :

0000.2

**TOTAL
PETROLEUM
HYDROCARBON
RESULTS**

1D
LBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
A2-BIT

Lab Name: Quanterra, MO Contract: 625.01
 Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: V074
 Matrix : (soil/water) SOIL Lab Sample ID: 11761-002
 Sample wt/vol: 4.0 (g/ml) G Lab File ID: _____
 Level: (low/med) MED Date Sampled: 08-06-96
 % Moisture: not dec. _____ Date Analyzed: 08-13-96
 Dilution Factor: 5.0

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>		Q
	<u>LBH (1)</u>	<u>540000</u>		<u>Y</u>

- U: Concentration of analyte is less than the value given.
 X: Pattern reasonably matches gasoline
 Y: Pattern appears to be multi-peaks, but does not match gasoline
 Z: Concentration is primarily from a single peak
- (1): Low Boiling Hydrocarbon (LBH) is quantitated as if it is Gasoline.

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.

A2-BIT

Lab Name: QUANTERRA MO

Contract: 625.01

Lab Code: ITMO Case No.: _____

SAS No.: _____ SDG No.: V074

Matrix : (soil/water) SOIL

Lab Sample ID: 11761-002

Sample wt/vol: 20.2 (g/ml) G

Lab File ID: _____

Level: (low/med) LOW

Date Sampled: 08-06-96

% Moisture: not dec. _____ dec. _____

Date Extracted: 08-20-96

Extraction: (SepF/Cont/Sonc/Shak) SHAK

Date Analyzed: 08-26-96

GPC Cleanup: (Y/N) N pH: _____

Dilution Factor: 260

CAS NO. Compound CONCENTRATION UNITS:
(mg/L or mg/Kg) mg/Kg Q

<u>DIESEL</u>	<u>6400 *</u>	<u>U</u>
<u>WASTE OIL</u>	<u>6400</u>	<u>U</u>

U: Concentration of analyte is less than the value given.

*: An unknown hydrocarbon was detected at a concentration of 160000mg/Kg.

RADIOANALYTICAL RESULTS

Bechtel Nevada Corporation

ANALYTICAL SERVICES LABORATORY
P.O. Box 3936, N. Las Vegas, NV 89036

Page 1

Report to: REMEDIATION PROJECTS
J. L. SMITH
M/S NTS306

Report Date: 14-AUG-96
Sample Delivery Group: U605
Batch: 0662
Program: 720

Report No.:

Sample Identification	Isotope	Analysis	Result	Error %	Qual Flag	MDA	Result Units	Analysis Date	Sample Coll Date	Size	Size Units	Type Matrix	Tracer Yield %	Spike Recv %	System Detector	Packet-Item Sample
A2-BIT	K 40	GAM20	7.89E+00	3.4E+01		9.3E-01	pCi/g	08-07-96	08-06-96	3.58E+02	gm	SOIL G			05-01	G5300-0-25342
A2-BIT	RA226	GAM20	7.24E-01	3.8E+01		1.8E-01	pCi/g	08-07-96	08-06-96	3.58E+02	gm	SOIL G			05-01	G5300-0-25342
A2-BIT	TH228	GAM20	1.48E+00	2.3E+01		1.7E-01	pCi/g	08-07-96	08-06-96	3.58E+02	gm	SOIL G			05-01	G5300-0-25342
A2-BIT	TH232	GAM20	1.53E+00	4.0E+01		3.4E-01	pCi/g	08-07-96	08-06-96	3.58E+02	gm	SOIL G			05-01	G5300-0-25342
QA BKG EMPTY BTL U05	No Nucl Det	GAM20	0.00E+00	0.0E+00	U	0.0E+00	NA	08-07-96	07-01-95	1.00E+00	sm	QUAL			05-01	00499-0-00146
QA SP-HAS-A0271	AM241	GAM20	1.70E+05	9.2E+00		2.3E+02	pCi	08-07-96	04-01-92	1.00E+00	sm	QUAL		105.0	05-01	00490-4-13040
QA SP-HAS-A0271	CO60	GAM20	3.04E+05	8.4E+00		1.7E+02	pCi	08-07-96	04-01-92	1.00E+00	sm	QUAL		102.0	05-01	00490-4-13040
QA SP-HAS-A0271	CS137	GAM20	2.07E+05	8.2E+00		7.8E+01	pCi	08-07-96	04-01-92	1.00E+00	sm	QUAL		102.1	05-01	00490-4-13040

Comments:

GAM20 = 20 MINUTE GAMMA SCAN

Qualification Flags:

E = Estimated Quantity

H = High Recovery for Sample

J = Result is less than the RDL

L = Low Recovery for Sample

P = Preliminary Results

Q = Bad Instrument Quality Control, Result is OK

R = Results are Unusable, Resampling is Necessary

U = Result is less than Minimum Detectable Activity

Note: % Error is the 2.0 Sigma Error

Prepared by:  Date: 8/14/96

Approved by:  Date: 8/14/96

***** End of Report *****

(Level 1)

FLASHPOINT RESULTS



Bechtel Nevada
USDOE, Zone 1
Building 652
Mercury, NV 89023

Environmental
Services

Project: 625.01

Category: FLASHPOINT
Method: EPA 1010
Matrix: Sludge

Sample Date : 08/06/96
Receipt Date : 08/09/96
Report Date : 08/20/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Di
A2-BIT	11761-002	Flashpoint	10-36-6	NA	08/13/96	08/13/96	>60.0	DEG C			
NA	QCLCS109214-1	Flashpoint	10-36-6	NA	08/13/96	08/13/96	28.0	DEG C			

JOB #:

TODAY'S DATE:

SMS

ASD/Sample Management Section

REYNOLDS ELECTRICAL AND ENGINEERING CO., INC.
SMS LABORATORY REQUEST

REV 10/4/94

INSTRUCTIONS ON BACK
PAGE OF

PROJECT INFORMATION

WORK ORDER

214 BC 300

PROJECT MANAGER

Angela Olson

PHONE

5-1276

MAIL STOP

MTS306

LOCATION

Area 2 Bitum

REPORT INFORMATION

DATE DUE

PRELIMINARY
REPORT:

QC REQUIREMENTS:

COPY

TO:

Angela Olson

PROJECT MANAGER

Jeff Smith

LAB USE ONLY

SDG #:

UG95 V074
G5300

Packet #: G5300, W1082

REMARKS:

PROJ NO

EVENT

SAMPLER
INITIALS:REMARKS
(PRESERVATIVE, SAMPLE SIZE,
SPECIAL ANALYSIS, COUNT TIME,
ETC.)

OTHER

OTHER

OTHER

OTHER

OTHER

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SAMPLED/INQUISHED

RAD
ONLY

DATE/TIME:

RECEIVED BY:

RAD
ONLY

8-7-96

8/7/96 @ 0750

Craig Kragg

RAD
ONLY

Angela Olson

8/8/96 @ 1330

CJ Castaneda

RAD
ONLY

CJ Castaneda

8-7-96 09:00

Fredrick Lopez

RAD
ONLY

Fredrick Lopez #9005432634

Jed Mitchell

AUGUST 12, 1996

***BITCUTTER AND POSTSHOT CONTAINMENT SHOPS
INJECTION WELLS
RINSE WATER SAMPLES
(A2-PS-RINSE, A2-BIT-RINSE)***



Interoffice Memorandum

To: S. J. Nacht

Date: September 11, 1996

From: A. R. Latham
Analytical Services Laboratory, 295-7472

No.: E100-AS-96-1475

Subject: DATA REPORT FOR SAMPLE
DELIVERY GROUP (SDG) V078

Enclosed are Quanterra Environmental Services' results, requested by J. L. Smith, for the volatile organics, total petroleum hydrocarbons (gasoline, diesel, oil), and metals analyses of two samples and the volatile organics analysis of one trip blank collected on August 12, 1996, in Area 2. Also enclosed is a Statement of Services which indicates the charge number associated with this SDG.

SPECIFIC:

Volatile Organics

Method associated quality assurance and control criteria were met. Method blank QCBLK10322, associated with sample A2-BIT-RINSE, was contaminated with amounts of acetone and methylene chloride. This sample's results for these components have been appropriately flagged with a "B". An amount of tetrachloroethene, below the detection limit, was also quantitated in sample A2-BIT-RINSE.

The trip blank was found to contain levels of acetone and 2-butanone. The concentration of acetone exceeded the range of the calibration and required a dilution and reanalysis. The diluted analysis is reported as sample "A2-TBDL" with the "D" qualifier indicating the results were generated from analysis of a diluted sample.

Total Petroleum Hydrocarbons (Gasoline, Diesel, Oil)

GASOLINE - Method associated quality assurance and control criteria were met. Analysis of sample A2-PS-RINSE produced a chromatogram which exhibited multiple peaks. However, the pattern did not match that of the gasoline standard in use. The laboratory quantitated the response using the gasoline calibration and qualified the result with a "Y" indicating the pattern did not appear to be gasoline.

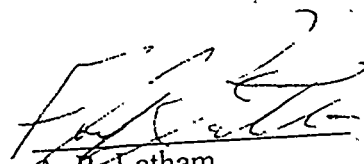
DIESEL/OIL - Method associated quality assurance and control criteria were met. Both samples were reported to contain amounts of an unknown hydrocarbon; sample A2-BIT-RINSE at approximately 18 mg/L and sample A2-PS-RINSE at approximately 3 mg/L. Sample A2-PS-RINSE also contained 12 mg/L of oil.

E-100-AS-96-1475
S. J. Nacht
Page 2 of 2
September 11, 1996

Metals

METALS - Method associated quality assurance and control criteria were met. Amounts of most analytes were seen in both samples.

Please direct any questions you may have to your Client Service Representative, Ted Redding, at 295-7220.



A. R. Latham

ARL:bv
Subject Code: MHS 1107

Enclosures: as stated

cc w/o encls.
Correspondence Control, M/S NLV008
K. A. Mobley, M/S NLV022

cc w/encls.
J. L. Smith, M/S NTS 306
ASL SDG V078, M/S NTS 273

**VOLATILE
ORGANICS
RESULTS**

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A2-BIT-RINSE

Lab Name: QUANTERRA MO

Contract: 625-01

Lab Code: ITMO

Case No.: V84101

SAS No.:

SDG No.: V078

Matrix: (soil/water) WATER

Lab Sample ID: 11841-001

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: F6451

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec.

Date Analyzed: 08/22/96

GC Column: RTX-502.2 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	12	B
67-64-1-----	Acetone	46	B
75-15-0-----	Carbon Disulfide	5	U
75-35-4-----	1,1-Dichloroethene	5	U
75-34-3-----	1,1-Dichloroethane	5	U
540-59-0-----	1,2-Dichloroethene (total)	5	U
67-66-3-----	Chloroform	5	U
107-06-2-----	1,2-Dichloroethane	5	U
78-93-3-----	2-Butanone	20	U
71-55-6-----	1,1,1-Trichloroethane	5	U
56-23-5-----	Carbon Tetrachloride	5	U
75-27-4-----	Bromodichloromethane	5	U
78-87-5-----	1,2-Dichloropropane	5	U
10061-01-5-----	cis-1,3-Dichloropropene	5	U
79-01-6-----	Trichloroethene	5	U
124-48-1-----	Dibromochloromethane	5	U
79-00-5-----	1,1,2-Trichloroethane	5	U
71-43-2-----	Benzene	5	U
10061-02-6-----	trans-1,3-Dichloropropene	5	U
75-25-2-----	Bromoform	5	U
108-10-1-----	4-Methyl-2-Pentanone	20	U
591-78-6-----	2-Hexanone	20	U
127-18-4-----	Tetrachloroethene	2	J
79-34-5-----	1,1,2,2-Tetrachloroethane	5	U
108-88-3-----	Toluene	5	U
108-90-7-----	Chlorobenzene	5	U
100-41-4-----	Ethylbenzene	5	U
100-42-5-----	Styrene	5	U
1330-20-7-----	Xylene (total)	5	U

**TOTAL
PETROLEUM
HYDROCARBON
RESULTS**

1D
LBH ANALYSIS DATA SHEET

EPA SAMPLE NO.
A2-BIT-RINSE

Lab Name: Quanterra, MO

Contract: 625.01

Lab Code: ITMO Case No.: _____

SAS No.: _____ SDG No.: V078

Matrix : (soil/water) WATER

Lab Sample ID: 11841-001

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: _____

Level: (low/med) LOW

Date Sampled: 08-12-96

% Moisture: not dec. _____

Date Analyzed: 08-21-96

Dilution Factor: 1.0

CAS NO.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>		Q
	<u>LEH (1)</u>	<u>100</u>		<u>U</u>

- U: Concentration of analyte is less than the value given.
 X: Pattern reasonably matches gasoline
 Y: Pattern appears to be multi-peaks, but does not match gasoline
 Z: Concentration is primarily from a single peak

(1): Low Boiling Hydrocarbon (LBH) is quantitated as if it is Gasoline.

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.

A2-BIT - 11841

Lab Name: QUANTERRA MO

Contract: 625.01

Lab Code: ITMO Case No.: SAS No.: SDG No.: V078

Matrix : (soil/water) WATER

Lab Sample ID: 11841-001

Sample wt/vol: 1000 (g/ml) mL

Lab File ID:

Level: (low/med) LOW

Date Sampled: 08-12-96

% Moisture: not dec. dec.

Date Extracted: 08-19-96

Extraction: (SepF/Cont/Sonc/Shak) SEPF

Date Analyzed: 08-30-96

GPC Cleanup: (Y/N) N pH:

Dilution Factor: 1

CAS NO.	Compound	CONCENTRATION UNITS:		Q
		(mg/L or mg/Kg)	<u>mg/L</u>	
	<u>DIESEL</u>	<u>0.5</u>	<u>*</u>	<u>U</u>
	<u>WASTE OIL</u>	<u>0.5</u>		<u>U</u>

U: Concentration of analyte is less than the value given.

*: An unknown hydrocarbon was detected at a concentration of approximately 18 mg/L.

1D
LBH ANALYSIS DATA SHEET

EPA SAMPLE NO.

A2-PS-RINSE

Lab Name: Quanterra, MO Contract: 625.01
 Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: V078
 Matrix : (soil/water) WATER Lab Sample ID: 11841-002
 Sample wt/vol: 5.0 (g/ml) ML Lab File ID: _____
 Level: (low/med) LOW Date Sampled: 08-12-96
 % Moisture: not dec. _____ Date Analyzed: 08-21-96
 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

CAS NO. Compound

_____ LBH (1) _____	_____ 2900 _____	_____ Y _____
---------------------	------------------	---------------

- U: Concentration of analyte is less than the value given.
 X: Pattern reasonably matches gasoline
 Y: Pattern appears to be multi-peaks, but does not match gasoline
 Z: Concentration is primarily from a single peak
- (1): Low Boiling Hydrocarbon (LBH) is quantitated as if it is Gasoline.

1D
HBH ANALYSIS DATA SHEET

EPA SAMPLE NO.

A2-PS-21NSC

Lab Name: QUANTERRA MO

Contract: 625.01

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: V078

Matrix : (soil/water) WATER

Lab Sample ID: 11841-002

Sample wt/vol: 1000 (g/ml) mL

Lab File ID: _____

Level: (low/med) LOW

Date Sampled: 08-12-96

% Moisture: not dec. _____ dec. _____

Date Extracted: 08-19-96

Extraction: (SepF/Cont/Sonc/Shak) SF:PF

Date Analyzed: 08-30-96

GPC Cleanup: (Y/N) N pH: _____

Dilution Factor: 1

CAS NO. Compound CONCENTRATION UNITS:
(mg/L or mg/Kg) mg/L Q

<u>DIESEL</u>	<u>0.5</u> *	<u>U</u>
<u>WASTE OIL</u>	<u>12</u>	

U: Concentration of analyte is less than the value given.

*: An unknown hydrocarbon was detected at a concentration of approximately 3 mg/L.

**TOTAL
METALS
RESULTS**

1

INORGANIC ANALYSES DATA SHEET

A2-BIT-RINSE

Contract: 625.01
SAS No.: SDG No.: V078
Lab Sample ID: 11841-001
Date Received: 08/16/96

[illegible]

Texture: _____
Artifacts: _____

Comments:

00052

1

INORGANIC ANALYSES DATA SHEET

A2-PS-RINSE

Contract: 625.01
SAS No.: SDG No.: V078
Lab Sample ID: 11841-002
Date Received: 08/16/96

Concentration Units (ug/L or mg/kg dry weight): UG/L_

[illegible]

Texture: _____
Artifacts: _____

Comments:

00033

JOB #: TODAY'S DATE: 8-13-96

PROJECT INFORMATION										REPORT INFORMATION										LAB USE ONLY																																							
WORK ORDER: <u> </u>										DATE DUE: <u> </u>										SDG #: <u>6078</u>																																							
PROJECT MANAGER: <u>Angela Olson</u>										PRELIMINARY REPORT: <u> </u>										Packet #: <u>W1086</u>																																							
PHONE: <u>1216</u>										COPY TO: <u> </u>										REMARKS: <u>General results</u>																																							
LOCATION: <u>Area 2 B. Center</u>										PROJECT MANAGER: <u>A. Olson</u>										<u>Pre-work only taken</u>																																							
MAIL STOP: <u>NTS306</u>										OTHER: <u> </u>										<u>See attached</u>																																							
FIELD SAMPLE ID										P C B										MATRIX										DATE/TIME COLLECTED										REMARKS																			
V O A										F L A O S I H T										G B A H P G F P										water										8/10/96 - 1430										3090ml; 3011Ltr; 10/20/01									
B N A										C H L O R										R A M S A D A S										water										8/12/96 - 1510										30 Ltr; 10/20/01									
M E T A L S										P C B										G B A H P G F P										water										8/12/96 - 0900										Trip Blank									
M E T A L S										F L A O S I H T										R A M S A D A S																																							
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M E T A L S																																																											

SEPTEMBER 16, 1996

***POSTSHOT CONTAINMENT SHOP INJECTION WELL
(A2-PS-55.5)***



Interoffice Memorandum

To: S. J. Nacht

Date: October 22, 1996

From: A. R. Latham
Analytical Services Laboratory, 295-7472

No.: E110-AS-97-056

Subject: DATA REPORT FOR SAMPLE DELIVERY GROUP (SDG) V102
Project No. 4001

Enclosed are Quanterra Environmental Services' results, requested by J. L. Smith, for the total petroleum hydrocarbons (gasoline, diesel, oil) and TCLP metals analyses of one sample collected on September 16, 1996, in Area 2. Also enclosed is a Statement of Services indicating the charge number associated with this SDG.

Preliminary data were faxed to the client on September 24, and 26, 1996.

Upon review of the data, it was observed that the samples were received at the laboratory outside $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Analytical Services was not notified of this prior to delivery of the data package.

SPECIFIC:

Total Petroleum Hydrocarbons (Gasoline, Diesel, Oil)

GASOLINE - Method associated quality assurance and control criteria were met. Analysis of the sample produced a multi-peak pattern. However, the chromatogram did not match those of the gasoline standards. Therefore, the reported result has been qualified with a "Y" indicating the component does not appear to be gasoline.

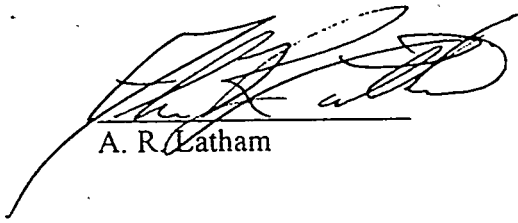
DIESEL/OIL - Method associated quality assurance and control criteria were met. An amount of oil was quantitated in the sample.

TCLP Metals

Sample PBT113290 was an extraction blank carried through the extraction and analysis process. METALS - Method associated quality assurance and control criteria were met.

MERCURY - Method associated quality assurance and control criteria were met.

Please direct any questions you may have to your Client Service Representative, Ted Redding, at 295-7220.



A. R. Latham

ARL:bv
Subject Code: ENV 3

Enclosures: as stated

Correspondence Control, w/o encs., M/S NLV008
K. A. Mobley, w/o encs., M/S NLV022
J. L. Smith, w/encs., M/S NTS306
ASL SDG V102, w/encs., M/S NTS273

**TOTAL
PETROLEUM
HYDROCARBON
RESULTS**

1D
LBH ANALYSIS DATA SHEET

EPA SAMPLE NO.

A2-PS-55.5

Lab Name: Quanterra, MO

Contract: 625.01

Lab Code: ITMO Case No.: _____ SAS No.: _____ SDG No.: V102

Matrix: (soil/water) SOIL

Lab Sample ID: 12186-001

Sample wt/vol: 1.0 (g/ml) G

Lab File ID: _____

Level: (low/med) LOW

Date Sampled: 09-16-96

% Moisture: not dec. _____

Date Analyzed: 09-20-96

Dilution Factor: 1.0

CAS NO.	Compound	CONCENTRATION UNITS:	
		(ug/L or ug/Kg)	<u>UG/KG</u>
			Q
	LBH (1)	3500	Y

- U: Concentration of analyte is less than the value given.
X: Pattern reasonably matches gasoline
Y: Pattern appears to be multi-peaks, but does not match gasoline
Z: Concentration is primarily from a single peak

(1): Low Boiling Hydrocarbon (LBH) is quantitated as if it is Gasoline.

1D
HSH ANALYSIS DATA SHEET

EPA SAMPLE NO.

A2-PS-55.5

Lab Name: QUANTERRA MO

Contract: 625.01

Lab Code: ITMO Case No.: SAS No.: SDG No.: V102

Matrix : (soil/water) SOIL

Lab Sample ID: 12186-OC1

Sample wt/vol: 20.1 (g/ml) G

Lab File ID:

Level: (low/med) LOW

Date Sampled: 09-16-96

% Moisture: not dec. dec.

Date Extracted: 09-20-96

Extraction: (SepF/Cont/Sonc/Shak) SHAK

Date Analyzed: 09-26-96

GPC Cleanup: (Y/N) N pH:

Dilution Factor: 5

CAS NO.

Compound

CONCENTRATION UNITS:

(mg/L or mg/Kg) mg/kg

Q

<u>DIESEL</u>	<u>120</u>	<u>U</u>
<u>WASTE OIL</u>	<u>1500</u>	

U: Concentration of analyte is less than the value given.

TCLP

METALS

RESULTS

1
INORGANIC ANALYSES DATA SHEET

A2-PS-55.5

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

comments:

TCLP

000002

1

APPENDIX D

WASTE DISPOSAL DOCUMENTS



Reynolds Electrical & Engineering Co., Inc.

05

NTS ONSITE WASTE TRANSPORT MANIFEST		MANIFEST DOCUMENT NO. 9 5 1 1 0	PAGE 1 OF 1	3754-040-SAP	
1. GENERATOR'S NAME, ORGANIZATION, AND LOCATION (IF REECO, INCLUDE DEPT. NO.) (PLEASE PRINT) Jeff Smith, Dept. 592 Environmental Remediation Section Bitcutters Shop, Area 2, NTS GENERATOR'S PHONE (702) 295-7775			2. DATE OF ACCUMULATION OR TRANSPORT 7-13-95		
3a. TRANSPORTER NAME (PLEASE PRINT) REECO/WOD DARYL DENISON			3b. VEHICLE I.D. NUMBER 83832		
4. U.S. DOT DESCRIPTION (INCLUDE PROPER SHIPPING NAME, HAZARD CLASS AND ID NUMBER, EPA WASTE CODE, AND WASTE STREAM AND PACKAGE IDENTIFICATION NUMBERS)			5. CONTAINERS NO. TYPE	6. TOTAL QUANTITY	7. UNIT WT/VOL
A.	HM XX	Hazardous Waste Solid, N.O.S., 9, NA3077, PG III (Sludge with 5.0 ppm Lead, D008) 02-0592-027-ZZ-95-001, -002	2 DM	55/5	G
B.					
C.					
D.					
USE CONTINUATION PAGES FOR ADDITIONAL ITEMS AS NECESSARY					
8. SPECIAL HANDLING INSTRUCTIONS AND ADDITIONAL INFORMATION: A) 95794 95795 BRADY #'s 592-407, 408 SAMPLE #'s AZ-P-1, AZ-P-3					
9. GENERATOR'S CERTIFICATION: I HEREBY CERTIFY THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY PROPER SHIPPING NAME AND ARE CLASSIFIED, PACKED, MARKED, AND LABELED, AND ARE IN GOOD CONDITION FOR HIGHWAY TRANSPORT ACCORDING TO APPLICABLE REGULATIONS. I FURTHER CERTIFY THAT THE CONTENTS INFORMATION ABOVE IS TRUE AND CORRECT TO MY KNOWLEDGE THROUGH PROCESS KNOWLEDGE OR LABORATORY ANALYSIS. I CERTIFY THAT THE WASTES ARE APPROPRIATELY SEGREGATED AND HAVE MADE A GOOD-FAITH EFFORT TO MINIMIZE WASTE GENERATED AT WORK LOCATIONS UNDER MY PURVIEW			RADIATION SURVEY HAZARDOUS WASTE REMOVAL ☒ This container is free of external radioactive contamination DATE: 7-13-95 ORGANIZATION: REECO/WOD SIGNATURE: Colleen K. Collett RE-2234 (1/90)		
10. GENERATOR'S SIGNATURE: 			DATE 7/13/95		
11. TRANSPORTER'S SIGNATURE: 			DATE 7/13/95		
12. DISCREPANCY INDICATION:					
13. DISPOSAL/ACCUMULATION SITE SIGNATURE (ACKNOWLEDGES ACCEPTANCE OF WASTE): 			DATE 7.13.95		



Reynolds Electrical & Engineering Co., Inc.

MEMORANDUM

To A. L. Olson THRU C. C. Neagle CCN

From R. F. Boehlecke *RFB*

Date July 20, 1995

Subject RESPONSE TO WORK REQUEST - DISPOSAL OF HYDROCARBON SOIL, SLUDGE, AND ASSOCIATED SOLID WASTE FROM THE AREA 2, BITCUTTER SHOP AND LAWRENCE LIVERMORE NATIONAL LABORATORY POSTSHOT CONTAINMENT FACILITY

Waste Management Department, Nonradioactive Waste Management personnel have reviewed your work request and sample analytical reports and are making the following recommendations:

Due to the presence of lead, the contents of drums 592-407 (samples A2-P-1 and A2-P-2) and 592-408 (sample A2-P-3) need to be handled as hazardous waste and transported to the Area 5 Hazardous Waste Accumulation Site for offsite disposal.

The personnel protective clothing and plastic sheeting contained in drums 592-401, -402, -403, and -404 and the soil pile 592-330 (sample A2-B-PILE) are not regulated under the Resource Conservation and Recovery Act and can be sent to the Area 9 Landfill.

To arrange disposal or if you have questions, please call me at 295-6213.

RFB:95240:ar

cy: Central Files, M/S 530
R. L. Dodge, M/S 448
R. H. Guymon, M/S 711
A. M. Heidema, M/S 501
S. L. Pfeuffer, M/S 708
J. L. Smith, M/S 969



Reynolds Electrical & Engineering Co., Inc.

MEMORANDUM

To A. L. Olson THRU C. C. Neagle *Aug 1 1995* *Amended for CCN*
From R. F. Boehlecke *RFB*
Date August 3, 1995
Subject DISPOSAL AUTHORIZATION FOR DECONTAMINATION WATER
FROM THE AREA 2 BITCUTTER AND LAWRENCE LIVERMORE
NATIONAL LABORATORY POSTSHOT CONTAINMENT FACILITY

Based on the analytical results and the process knowledge you have provided the contents of drums 592-405 and -406 (samples A2-P-RINSE and ~~A2-B-RINSE~~) are not regulated under the Resource Conservation and Recovery Act and can be pumped into the sewage lagoon system. Before discharge into the sewage lagoon system any oil sheen on the water must be removed with an absorbent such as pig mat. Please call S. L. Supple at 295-4838 to arrange disposal. *J*

If you have questions, please call me at 295-6213.

RFB:95250:ar

cy: Central Files, M/S 530
R. H. Guymon, M/S 711
A. M. Heidema, M/S 501
S. L. Pfeuffer, M/S 708
S. L. Supple, M/S 932



Reynolds Electrical & Engineering Co., Inc.

MEMORANDUM

To A. L. Olsen THRU C. C. Neagle C.C.N.
From R. F. Boehlecke RFB
Date October 17, 1995
Subject DISPOSAL RECOMMENDATION FOR DRUM CONTAINING RINSEATE

Waste Management Department, Nonradioactive Waste Management Section personnel are making the following recommendation based on process knowledge and analytical results you have provided.

Drum 592-328 (Sample A2-B-RINSE) contains rinseate generated during work at the Area 2 Bitcutter Shop. The contents of this drum are not regulated under the Resource Conservation and Recovery Act and can be pumped into the sewage lagoon system. Any oil sheen present on the water must be removed with an absorbent such as pig mat before disposal. Please call S. L. Supple at 295-4838 to arrange disposal.

If you have questions, please call me at 295-6213.

RFB:96006:akr

cy: Central Files, M/S 530
R. H. Guymon, M/S 711
A. M. Heidema, M/S 501
S. L. Pfeuffer, M/S 708

Reynolds Electrical & Engineering Co., Inc.

NTS ONSITE WASTE TRANSPORT MANIFEST

MANIFEST
DOCUMENT NO.

PAGE 1

OF 1

1. GENERATOR'S NAME, ORGANIZATION, AND LOCATION (IF REECO, INCLUDE DEPT. NO.)
(PLEASE PRINT)

GENERATOR'S PHONE (7-2) 244-7775

2. DATE OF ACCUMULATION OR TRANSPORT

August 8, 1996

3a. TRANSPORTER NAME (PLEASE PRINT)

P.N. / WAMP DASUL. DENISON

3b. VEHICLE I.D. NUMBER

83832

4. U.S. DOT DESCRIPTION (INCLUDE PROPER SHIPPING NAME, HAZARD CLASS AND ID NUMBER, EPA WASTE CODE, AND WASTE STREAM AND PACKAGE IDENTIFICATION NUMBERS)

5. CONTAINERS

NO.

TYPE

6. TOTAL
QUANTITY

7. UNIT
WT/VOL

A. HM HAZARDOUS WASTE SOLID, AQUEOUS, 9, NH₄OH, 16 II
(SOIL CONTAMINATED BY LEAKAGE, FILL) 02-0592-027-22-96-014, -015

B. HM HAZARDOUS WASTE SOLID, AQUEOUS, 1, NH₄OH, 16 II
(SOIL CONTAMINATED BY LEAKAGE, DODGE) 02-0592-027-22-96-016, -017

2

DM

55/55

G

2

DM

55/55

G

USE CONTINUATION PAGES FOR ADDITIONAL ITEMS AS NECESSARY

8. SPECIAL HANDLING INSTRUCTIONS AND ADDITIONAL INFORMATION:

A) 96615, 96616 512-204 592-605
B) 96617, 96618 512-608 592-609

9. GENERATOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY PROPER SHIPPING NAME AND ARE CLASSIFIED, PACKED, MARKED, AND LABELED, AND ARE IN ALL RESPECTS IN PROPER CONDITION FOR HIGHWAY TRANSPORT ACCORDING TO APPLICABLE REGULATIONS.

I FURTHER CERTIFY THAT THE CONTENTS INFORMATION ABOVE IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE THROUGH PROCESS KNOWLEDGE OR LABORATORY ANALYSIS. I CERTIFY THAT, WHERE APPLICABLE, I HAVE APPROPRIATELY SEGREGATED WASTES AND HAVE MADE A GOOD-FAITH EFFORT TO MINIMIZE THE AMOUNT OF WASTE GENERATED AT WORK LOCATIONS UNDER MY PURVIEW.

10. GENERATOR'S SIGNATURE

DATE

8/8/96

11. TRANSPORTER'S SIGNATURE

DATE

8/8/96

12. DISCREPANCY INDICATION

DISPOSAL/ACCUMULATION SITE SIGNATURE (ACKNOWLEDGES ACCEPTANCE OF WASTE)

DATE

8-8-96

TO: ANGELA NTS306

Bechtel Nevada

HAZARDOUS WASTE CERTIFICATION

9601-1
Associated Onsite Manifest

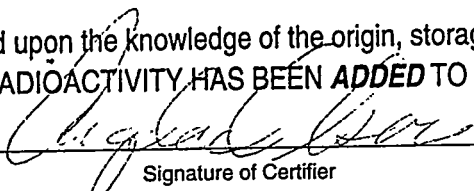
1. Is this waste considered abandoned? ☐ Yes ☒ No
2. Has any of the waste listed on the attached manifest been used or stored in a Controlled Waste Management Area (CWMA) as defined below?
☒ Yes ☒ No ^{*} DB

A CWMA is "an area in which the potential exists for contamination due to presence of unencapsulated or unconfined radioactive material or an area that is exposed to beams or other sources of particles capable of causing activation, i.e. neutrons, protons, etc.

☐ Yes ☐ No
3. Has any of the waste listed on the attached manifest been used or stored in any other posted or suspected radiological control area? ☐ Yes ☒ No
4. Has any of the waste listed on the attached manifest commingled with any radioactive mixed waste? ☐ Yes ☒ No
5. Has any of the waste listed on the attached manifest commingled with loose radioactive contamination? ☐ Yes ☒ No
6. Has any of the waste listed on the attached manifest commingled with fixed radioactive contamination? ☐ Yes ☒ No

1. Generator able to certify waste as nonradioactive:

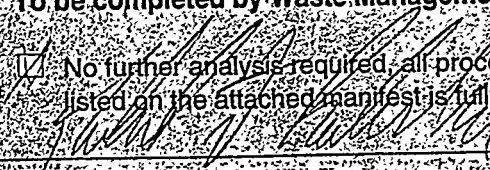
Based upon the knowledge of the origin, storage, use and potential exposure of the waste, I CERTIFY THAT NO RADIOACTIVITY HAS BEEN **ADDED** TO THE WASTE LISTED ON THE ATTACHED MANIFEST.


Signature of Certifier

Date

2. To be completed by Waste Management personnel only:

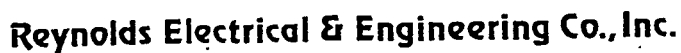
☒ No further analysis required; all process knowledge is present and documented, and the waste listed on the attached manifest is fully characterized.


Signature of Waste Management Specialist

8/8/96
Date

IF ANY OF THE ABOVE QUESTIONS ARE ANSWERED "YES," THE WASTE WILL REQUIRE ONE OF THE FOLLOWING:

1. DOCUMENTATION DEMONSTRATING THAT NO POTENTIAL FOR INTERNAL CONTAMINATION EXISTS (PROCESS KNOWLEDGE); OR
2. RESULTS OF RADIOANALYSES PERFORMED ON THE WASTE.



DISTRIBUTION: White — DWMD Area 5
Canary — Generator

RE-2232A (10/90)

Bechtel Nevada

HAZARDOUS WASTE CERTIFICATION

96113
Associated Onsite Manifest

1. Is this waste considered abandoned? ☐ Yes ☒ No
2. Has any of the waste listed on the attached manifest been used or stored in a Controlled Waste Management Area (CWMA) as defined below?
☒ Yes ☒ No *233*

A CWMA is "an area in which the potential exists for contamination due to presence of unencapsulated or unconfined radioactive material or an area that is exposed to beams or other sources of particles capable of causing activation, i.e. neutrons, protons, etc."

☐ Yes ☐ No
3. Has any of the waste listed on the attached manifest been used or stored in any other posted or suspected radiological control area? ☐ Yes ☒ No
4. Has any of the waste listed on the attached manifest commingled with any radioactive mixed waste? ☐ Yes ☒ No
5. Has any of the waste listed on the attached manifest commingled with loose radioactive contamination? ☐ Yes ☒ No
6. Has any of the waste listed on the attached manifest commingled with fixed radioactive contamination? ☐ Yes ☒ No

1. Generator able to certify waste as nonradioactive:

Based upon the knowledge of the origin, storage, use and potential exposure of the waste, I CERTIFY THAT **NO RADIOACTIVITY HAS BEEN ADDED TO THE WASTE LISTED ON THE ATTACHED MANIFEST.**

[Signature]
Signature of Certifier

8-13-96
Date

2. To be completed by Waste Management personnel only:

☒ No further analysis required, all process knowledge is present and documented, and the waste listed on the attached manifest is fully characterized.

[Signature]
Signature of Waste Management Specialist

8-13-96
Date

IF ANY OF THE ABOVE QUESTIONS ARE ANSWERED "YES," THE WASTE WILL REQUIRE ONE OF THE FOLLOWING:

1. DOCUMENTATION DEMONSTRATING THAT NO POTENTIAL FOR INTERNAL CONTAMINATION EXISTS (PROCESS KNOWLEDGE); OR
2. RESULTS OF RADIOANALYSES PERFORMED ON THE WASTE.

Manifest
Document
No.:

Bechtel Nevada

Page 1 of 1

9 6 1 2 9

NTS ONSITE WASTE TRANSPORT MANIFEST

1. Generator's Name, Organization, and Location: (If Bechtel Nevada, include department no.)
(Please Print)

Angela Olsen
Area 2, Bitcutter
Environmental Remediation

Generator's Phone: () 295-7276

2. Date of Accumulation or Transport:

September 19, 1996

3.a Transporter Name:
(Please Print)

BN/WMP

3.b Vehicle I.D. No.:

83832

4. U.S. D.O.T. Description. Include: EPA Waste Code and Waste Stream; and Package Identification Numbers.

5. Containers

6. Total
Quantity

7. Unit
Wt./Vol.

No.

Type

HM

a Hazardous Waste, solid, n.o.s., 9, NA 3077,
PG III (soil contaminated with lead, D008)
02-3592-027-22-96-023

01

DM

SS

G

XX

b

c

d

Use continuation pages for additional items, as necessary.

8. Special Handling Instructions and Additional Information:

ER # 295-6400

a) 96710

Brady 592-621

SEE MANIFEST 96107 FOR CHARACTERIZATION DATA

9. Generator's Certification:

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for highway transport according to applicable regulations.

I further certify that the contents information above is true and correct to the best of my knowledge through process knowledge or laboratory analysis. I certify that, where applicable, I have appropriately segregated wastes and have made a good-faith effort to minimize the amount of waste generated at work locations under my purview.

10. Generator's Signature:

Date:

9-19-96

11. Transporter's Signature:

Date:

12. Discrepancy Indication:

13. Disposal/Accumulation Site Signature
(Acknowledges acceptance of waste)

Date:

Bechtel Nevada

HAZARDOUS WASTE CERTIFICATION

7/12/77
Associated Onsite Manifest

1. Is this waste considered abandoned? ☐ Yes ☒ No
2. Has any of the waste listed on the attached manifest been used or stored in a Controlled Waste Management Area (CWMA) as defined below? ☒ Yes ☐ No

A CWMA is "an area in which the potential exists for contamination due to presence of unencapsulated or unconfined radioactive material or an area that is exposed to beams or other sources of particles capable of causing activation, i.e. neutrons, protons, etc.

☐ Yes ☐ No
3. Has any of the waste listed on the attached manifest been used or stored in any other posted or suspected radiological control area? ☐ Yes ☐ No
4. Has any of the waste listed on the attached manifest commingled with any radioactive mixed waste? ☐ Yes ☒ No
5. Has any of the waste listed on the attached manifest commingled with loose radioactive contamination? ☐ Yes ☐ No
6. Has any of the waste listed on the attached manifest commingled with fixed radioactive contamination? ☐ Yes ☐ No

1. Generator able to certify waste as nonradioactive:

Based upon the knowledge of the origin, storage, use and potential exposure of the waste, I CERTIFY THAT NO RADIOACTIVITY HAS BEEN **ADDED** TO THE WASTE LISTED ON THE ATTACHED MANIFEST.

Signature of Certifier

Date

2. To be completed by Waste Management personnel only:

☒ No further analysis required, all process knowledge is present and documented, and the waste listed on the attached manifest is fully characterized.

[Signature]
Signature of Waste Management Specialist

7-19-76
Date

IF ANY OF THE ABOVE QUESTIONS ARE ANSWERED "YES," THE WASTE WILL REQUIRE ONE OF THE FOLLOWING:

1. DOCUMENTATION DEMONSTRATING THAT NO POTENTIAL FOR INTERNAL CONTAMINATION EXISTS (PROCESS KNOWLEDGE); OR
2. RESULTS OF RADIOANALYSES PERFORMED ON THE WASTE.

Manifest
Document
No.:

9 7 0 0 4

Bechtel Nevada

Page 1 of 1

CHARACTER# [REDACTED]
ORG# E100

NTS ONSITE WASTE TRANSPORT MANIFEST

1. Generator's Name, Organization, and Location: (If Bechtel Nevada, include department no.)
(Please Print)

Angela Olson
ER Projects
Area 2, Bitcutter Shop, NTS

Generator's Phone: (702) 295-7276

2. Date of Accumulation or Transport:

October 2, 1996

3.a Transporter Name:

(Please Print)

BN/WMP

Clint Henderson

3.b Vehicle I.D. No.:

83832

4. U.S. D.O.T. Description. Include: EPA Waste Code and Waste Stream; and Package Identification Numbers.

5. Containers

No.

Type

6. Total
Quantity

7. Unit
Wt./Vol.

a HM Hazardous Waste Liquid, N.O.S., 9, NA3082, PGII
(Rinse water with chromium and lead, D007, D008)

XX

4

DM

SS/SS/SS
240/SS

G

Use continuation pages for additional items, as necessary.

8. Special Handling Instructions and Additional Information: Emergency Contact 295-6400
ERG # 171

A) 97001, 97002, Drum #'s 592-619, -621, -622 and -623
97003, 97004

9. Generator's Certification:

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for highway transport according to applicable regulations.

I further certify that the contents information above is true and correct to the best of my knowledge through process knowledge or laboratory analysis. I certify that, where applicable, I have appropriately segregated wastes and have made a good-faith effort to minimize the amount of waste generated at work locations under my purview.

10. Generator's Signature:

Angela Olson

Date:

10-2-96

11. Transporter's Signature:

Clint Henderson

Date:

10/2/96

12. Discrepancy Indication:

13. Disposal/Accumulation Site Signature
(Acknowledges Acceptance of waste)

Clint Henderson

Date:

10/2/96

Bechtel Nevada

HAZARDOUS WASTE CERTIFICATION

96002

Associated Onsite Manifest

1. Is this waste considered abandoned?

☐ Yes ☒ No

2. Has any of the waste listed on the attached manifest been used or stored in a Controlled Waste Management Area (CWMA) as defined below?

☒ Yes ☐ No

A CWMA is "an area in which the potential exists for contamination due to presence of unencapsulated or unconfined radioactive material or an area that is exposed to beams or other sources of particles capable of causing activation, i.e. neutrons, protons, etc.

☐ Yes ☐ No

3. Has any of the waste listed on the attached manifest been used or stored in any other posted or suspected radiological control area?

☐ Yes ☒ No

4. Has any of the waste listed on the attached manifest commingled with any radioactive mixed waste?

☐ Yes ☒ No

5. Has any of the waste listed on the attached manifest commingled with loose radioactive contamination?

☐ Yes ☒ No

6. Has any of the waste listed on the attached manifest commingled with fixed radioactive contamination?

☐ Yes ☒ No

1. Generator able to certify waste as nonradioactive:

Based upon the knowledge of the origin, storage, use and potential exposure of the waste, I CERTIFY THAT NO RADIOACTIVITY HAS BEEN ADDED TO THE WASTE LISTED ON THE ATTACHED MANIFEST.

Signature of Certifier

Date

10-2-96

2. To be completed by Waste Management personnel only:

☒ No further analysis required, all process knowledge is present and documented, and the waste listed on the attached manifest is fully characterized.

Signature of Waste Management Specialist

Date

10-1-96

IF ANY OF THE ABOVE QUESTIONS ARE ANSWERED "YES," THE WASTE WILL REQUIRE ONE OF THE FOLLOWING:

1. DOCUMENTATION DEMONSTRATING THAT NO POTENTIAL FOR INTERNAL CONTAMINATION EXISTS (PROCESS KNOWLEDGE); OR
2. RESULTS OF RADIOANALYSES PERFORMED ON THE WASTE.

TENTION SHIPPERS!

FREIGHT CHARGES ARE PREPAID ON THIS BILL OF LADING UNLESS MARKED COLLECT.

STRAIGHT BILL OF LADING
ORIGINAL—NOT NEGOTIABLE

Shopper No. _____

Carrier No. _____

Date 10-21-96

Page 1 of 1

BNC/WMP/NWO

(SCAG)

* Collect on Defective shipments: the letters "COD" must appear before consignee's name or as otherwise provided in sect 430, Sec. 1

TO: Area 6 Sewage Lagoon - Yucca Lake

IV State Zip Code

FROM: Area 2, Bitcutter/Postshot
Shipper

Street _____

City _____ State _____ Zip Code _____

24 hr. Emergency Contact Tel. No. _____

Vehicle
Number[illegible]

PLACARDS TENDERED: YES ☐ NO ☐

REMIT.
C.O.D. TO:
ADDRESS

COD

Amt: \$

C.O.D. FEE:
PREPAID []
COLLECT []

TOTAL CHARGES:

FREIGHT CHARGES

Check box if charges are to be collected

Note: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

[illegible]

[Faint handwritten notes at the bottom of the page]

Shippel hereby certifies that he is familiar with all the hall of leading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

UPPER

CARRIER

PER



Interoffice Memorandum

To: A. L. Olson

Date: October 30, 1996

From: D. L. Schlick
Nonradioactive Waste Operations, 295-6904

No.: E110-WM-97-037

Subject: **DISPOSAL RECOMMENDATION FOR AREA 2 BITCUTTER/POSTSHOT
INJECTION WELLS CLOSURE WASTE**
Project No. N/A

Waste Management Program/Nonradioactive Waste Operations personnel are making the following recommendation based on process knowledge and analytical results you have provided on the waste generated during closure activities at the Bitcutter and Postshot Containment Shops Injection Wells in Area 2.

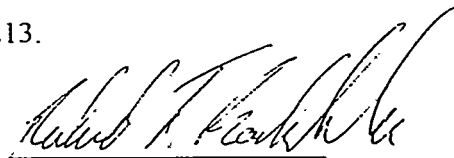
The rinseate in drums 592-602, -603, and -606 are not regulated under the Resource Conservation and Recovery Act (RCRA) and can be pumped into the sewage lagoon system. To arrange disposal contact R. Rehfeld at 295-6360

The plastic and Personnel Protective Equipment (PPE) contained in drums 592-607, -610, -616, -617, and -618 is not regulated under RCRA and should be sent to the sanitary landfill. To arrange disposal contact C. C. Gonzales at 295-7277.

Due to the presence of Cadmium (D006), Chromium (D007), and Lead (D008) above regulatory limits the rinseate in drums 592-619, -621, -622, and -623 needs to be handled as hazardous waste. These drums were transported to the Area 5 Hazardous Waste Storage Unit (HWSU) for offsite disposal on October 3, 1996 (Manifest 97001).

The plastic, PPE, and sludge contained in drum 592-621 has been characterized as hazardous based on past samples which detected lead (D008) above regulatory limits in the sludge from the Postshot Injection Well. This drum was transported to the HWSU on September 19, 1996 (Manifest 96129).

If you have questions, please call R. F. Boehlecke at 295-6213.

for 
D. L. Schlick

RFB:akr

Subject Code: WM171

cc: See page 2

E110-WM-97-037

A. L. Olson

Page 2 of 2

October 30, 1996

cc: Correspondence Control, M/S NLV008

J. A. Dickinson, M/S NLV080

R. L. Dodge, M/S NLV082

D. L. Foster, M/S NLV080

R. H. Guymon, M/S NTS205

A. R. Latham, M/S NTS273

S. J. Nacht, M/S NTS306

A. K. Rich, M/S NTS207

J. L. Smith, M/S NTS306

L. S. Sygitowicz, M/S NLV080

APPENDIX E
DRAINAGE ANALYSIS

DESIGN ANALYSIS

CAU 90 BITCUTTER & POSTSHOT CONTAINMENT SHOPS RCRA CLOSURES DRAINAGE ANALYSIS

NO.	DATE	REVISIONS	ORIGINATOR	CHECK	PE/CHIEF ENGR

U.S. DEPARTMENT OF ENERGY

NEVADA OPERATIONS OFFICE

LAS VEGAS, NEVADA

ORIGINATOR

CHECK

SUBMITTED (PE/CHIEF ENGINEER)

Julie A. Savola

Antoinette Butler

J. Ford

BECHTEL NEVADA

Bechtel Nevada

P.O. BOX 3936 NORTH LAS VEGAS, NV 89036

P. A. NO
N/A

ACTIVITY CODE
C15BC100

PROJ. NO.
96063.A(2)

ANALYSIS NUMBER

NLVDA-C-200

SHEET 1 OF 11

DESIGN ANALYSIS		
Date: <u>6/96</u>	Prepared by: <u>J. SOROLA</u>	Reference No.: <u>N/A</u>
Project Title: <u>BITCUTTER AND POSTSHOT CONTAINMENT</u> <u>ENCLOS. DRAINAGE</u>		
Project Engineer: <u>J. PEDALINO</u>		User: <u>DOE/ERD</u>
Engineering branch: <u>FACILITIES / CIVIL</u>		
Calculations Checked by:		Date: _____
Objectives: <u>EVALUATE EXIST DRAINAGE FOR 25YR-24</u> <u>HR STORM AND PROVIDE MITIGATION MEASURES</u> <u>IF NECESSARY.</u>		
Criteria: <u>SEE ATTACHED</u>		
Design Basis: <u>40 CFR 264: PREVENT CASH OUT OF</u> <u>CONTAMINANTS FROM 25YR-24 HR STORM</u>		
Reference Documents: <u>SEE ATTACHED</u>		
Assumptions: <u>MAINTAINING IN</u> <u>HYDROLOGIC SOIL GROUP</u> <u>RUNOFF CURVE NUMBER</u> <u>CHANNEL GEOMETRY</u>		
Calculations: <u>SEE ATTACHED</u>		

Bitcutter and Postshot
 Contaminant shops Drainage Analysis
 List of Abbreviations

A	Channel Flow Area
A _m	Drainage Basin Area
AMC	Antecedent Moisture Condition
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CN	Soil Conservation Service Runoff Curve Number
d	Depth of Flow
Ft	Feet
Ft/s	Feet per Second
HR	Hour
HSG	Hydrologic Soil Group
I _a	Initial Abstraction
L	Length of Flow
Mi ²	Square Miles
n	Mannings Channel Roughness Factor
NAC	Nevada Administrative Code
NTS	Nevada Test Site
P	Precipitation/ Wetted Perimeter
Q	Runoff
Quad	USGS Quadrangle
R	Hydraulic Radius
S	Channel Slope
T _c	Time of Concentration
T _t	Travel Time
USGS	United States Geological Survey
V	Velocity
w	Flow width

DESIGN SUMMARY
 for
 BITCUTTER & POSTSHOT CONTAINMENT SHOPS
 INJECTION WELLS CLOSURE DRAINAGE

SCOPE

The purpose of this analysis is to provide positive drainage of the area around the Bitcutter and Postshot injection wells located in Area 2 of the Nevada Test Site.

REFERENCES

1. Soil Conservation Service, Hydrology for Small Watersheds, TR-55.
2. 40 CFR 264.
3. NAC 534.

CRITERIA

The closure of both units must prevent washout of any contaminants from a 25 year-24 hour storm event.

DISCUSSION

The bitcutter and Postshot containment shops injection wells were not used for disposal of bulk or containerized waste which would be subject to present or future subsidence. Both holes were stemmed with gravel material to within approximately 50 feet of the surface and the remaining 50 feet will be filled with shrinkage compensating cement grout in accordance with NAC 534.

Each casing protrudes into a vault (sealed on the bottom around the casings) which was recessed into a concrete floor covered by metal plates which could be removed. The buildings and the majority of the floors and metal plates associated with each casing have been removed. The minimum vault depth is approximately 3 feet. Each vault will be filled with concrete and a concrete pad, sloped for drainage, with a survey monument will be constructed over the casings/ vaults.

A site visit was made to assess site conditions for drainage. Northeast of the drill holes is an approximately 10 foot high pile of native material which is essentially providing a diversion structure for any run-on to the site. Just to the east

of this are multiple swales which will further help to divert flow away from the site of the injection wells.

CALCULATIONS (See Attached)

USGS quadrangles were used to assess the drainage basin that would impact the closure site. The 3-D quad. information coupled with the site visit indicated that the site was located on an alluvial fan, not far from the apex. The entire basin was delineated and then subareas identified based on flow lines and elevation information obtained by creating a digital terrain model of the USGS quadrangles. The longest flow paths were based on USGS flow lines that were the longest in each subarea. Lengths of flow, areas, and elevations were measured off the 3-D surface created from the Quads.

By creating a 3-D surface model, cross sections at the flow channel locations could be plotted, which enabled reasonable channel cross section geometry elements to be measured and calculated. As detailed field investigations were not performed, channel top widths were held to a reasonable value based on channel flow characteristics previously encountered in analysis of 25-24 flows in Area 5 of the NTS.

As no detailed field investigation was performed, the HEC-1 hydrograph method was not used. As the total drainage basin is over 10 square miles, the Graphical Peak Discharge method was not used. The TR-55, Tabular Hydrograph method was determined to be an appropriate method for use in determining an approximate peak discharge that could impact the site.

RESULTS

The calculated approximate peak discharge that could impact the site is 7701 cubic feet per second in a natural channel with a calculated top width of 337 feet. The calculated depth of flow is 2.5 feet with a velocity of 9.04 feet per second.

Based on past experience with NTS soils and calculated sedimentation, it is expected that for a velocity of 9.04 feet per second, the depth of scour would be approximately 6 feet. As the casings are to be plugged with cement grout to an approximate depth of 50 feet, it is very unlikely that any contaminants will be washed out due to the 25 year-24 hour storm event and no additional mitigation measures will be required.

ENGINEERING DESIGN
CALCULATION COVER SHEETProject No. 96063A02Date 6/96ID No. C15BC100

Revision _____ Date _____

Project Name/Title: BITUMEN AND POTENTIAL CONTAMINANT SHEDSubject: EXISTING DRAINAGEComputer Calculations Used: ☐ Yes ☒ No

If yes, complete information in the box below:

1. Software Name:	
Version No:	
2. Software Name:	
Version No:	
Hardware Manufactures's Name:	
Model No:	

Originator's Signature: Julia A. SorellaReviewed by: Julianne Miller

Method used:

Design Review



Alternate Calculation



Qualification Testing



BITCUTTER & POSTSHOT INJECTION WELL DRAINAGE

THE SITE IS LOCATED ON AN ALLUVIAL FAN NOT FAR FROM THE APEX.

DRAINAGE AREA, SUBAREAS, FLOW LENGTHS, SLOPES, AND CHANNEL GEOMETRY ARE MEASURED FROM 3-D INFORMATION CREATED FROM USGS 7.5 MINUTE QUADRANGLES.

ALL VALUES ARE RECOMMENDED VALUES FOR USE BY BECHTEL HYDROLOGIST.

AS NO FIELD INVESTIGATION WAS PERFORMED, THE TR-55 TABULAR HYDROGRAPH METHOD IS USED TO DETERMINE PEAK DISCHARGE. (SEE ATTACHED EXCERPTS)

DAWIDY'S EQUATIONS ARE USED TO CALCULATE THE DEPTH, WIDTH, AND VELOCITY OF THE PEAK DISCHARGE AS THE SITE IS ON AN ALLUVIAL FAN.

DRAINAGE BASIN / CHANNEL INFORMATION		
SUB AREA	A (mi ²)	TOTAL BASIN AREA = 22.3 mi ²
1	2.2	
2	0.908	
3	0.53	
4	4.50	
5	2.24	
6	1.54	
7	2.82	
8	0.62	
9	4.82	
10	0.61	
12	0.87	

FOR CHANNEL GEOMETRY AND VELOCITY -

$$V = \frac{1.49 A R^{2/3} S^{1/2}}{1.48}$$

$$R = A/P$$

$$T_c = \frac{L}{3600V}$$

REACH	L (ft)	S	Ach (ft ²)	P (ft)	R (ft)	n	V (ft/s)	Tc (hr)
1	17539.2	.091	316	100	3.16	.045	21.6	.226
2	8221.4	.135	661	214	3.09		25.9	.088
3	7308.6	.191	356	192	1.85		21.9	0.10
4	32449.6	.065	263	53.5	4.92		24.5	.368
AB	3606.9	.055	383	117	3.27		17.2	.058
5	17116.5	.075	404	110	3.67		21.7	.219
6	15464.7	.107	404	110	3.67		25.9	.166
BC	10514.5	.033	404	110	3.67		14.4	.203
7	16360.6	.125	252	154	1.64		16.3	0.30
8	10947.3	.091	144	45	3.00		20.9	.145
9	22768.7	.077	305	140	2.16		15.5	.408
10 (DE)	7408.3	.039	568	192	2.96		13.5	0.20
11 (CE)	4021.4	.027	974	300	3.25	✓	12.0	.093
12 (EF)	14133.2	.026	458	292	1.57	.040	8.1	.485

$P = 2.1''$ (NOAA ATLAS FOR WESTERN U.S.) 25 YEAR-24 HR

$CN = 85$ (DESERT - POOR CONDITION)

$HSG = C$ DUE TO LOW PERMEABILITIES OF JUTS SOILS AND INTRINSIC NATURE OF SUMMER STORMS OF HIGH INTENSITY - SHORT DURATION (WILL BE CONSERVATIVE)

$$S = \frac{1000}{CN} - 10 = 1.76$$

$$I_a = 0.25 = 0.35$$

$$\frac{I_a}{P} = 0.17$$

$$Q = \frac{(P - .25)^2}{(P + .85)} = .872$$

RAINFALL DISTRIBUTION = TYPE II

* SEE WORKSHEET SA & SL FOR COMPUTATION OF PEAK DISCHARGE.

USING DAUDYS EQUATIONS: $Q = 1701$ CFS

$$C' = .705(Q)^{3/5} = 2.5'$$

$$L = 7.408(Q)^{2/5} = 237'$$

$$V = 1.51(Q)^{1/5} = 9.04 \text{ Ft/s}$$

Worksheet 5a: Tabular hydrograph discharge summary

Project: Bitter Lake Location: NTS A-Z By: JAS Date: _____
 Circle one: Present Developed _____ Frequency (yr) 25 Checked _____ Date: _____

Subarea name	Basic watershed data used 1/			Select and enter hydrograph times in hours from exhibit 5-II 2/											
	Sub-area T _c (hr)	T _c to outlet (hr)	I _a /P	A _m Q (mi ² -in)	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	13.0
					Discharges at selected hydrograph times 3/										
1	.2	.75	.17	1.92	44	50	58	65	77	106	165	288	474	670	841
2	.1	.75		.792	23	26	30	39	58	100	177	272	342	367	305
3	.1	.75		.462	13	15	18	23	34	58	103	158	200	214	178
4	.4	.75		3.92	94	102	118	137	176	255	416	666	984	1278	1541
5	.2	.50		2.48	87	99	129	198	352	650	1017	1250	1255	1094	667
6	.2	.50		1.34	47	54	70	107	190	351	549	675	678	591	360
7	.3	.50		2.46	86	103	138	219	389	669	976	1161	1169	1043	674
8	.1	.5		.541	21	25	37	63	119	212	287	299	261	206	113
9	.4	.5		4.2	130	151	185	260	418	739	1172	1592	1840	1898	1424
10	.2	.40	↓	1.532	20	23	30	50	92	171	258	293	270	218	121
Composite hydrograph at outlet															

- 1/ Worksheet 5a. Rounded as needed for use with exhibit 5.
 2/ Enter rainfall distribution type used.
 3/ Hydrograph discharge for selected times is $A_m Q$ multiplied by tabular discharge from appropriate exhibit 5.

9 of 11
 NLVDA-C-200

Project Butterfly
Circ. 2 one: (Present) Developed

Location NTIS 1/16/61-2

By JMS

Date _____

Frequency (yr) 25-24 Checked

Date _____

[illegible]

1/ Worksheet 5a. Rounded as needed for use with exhibit 5.
2/ Enter rate(s) directly.

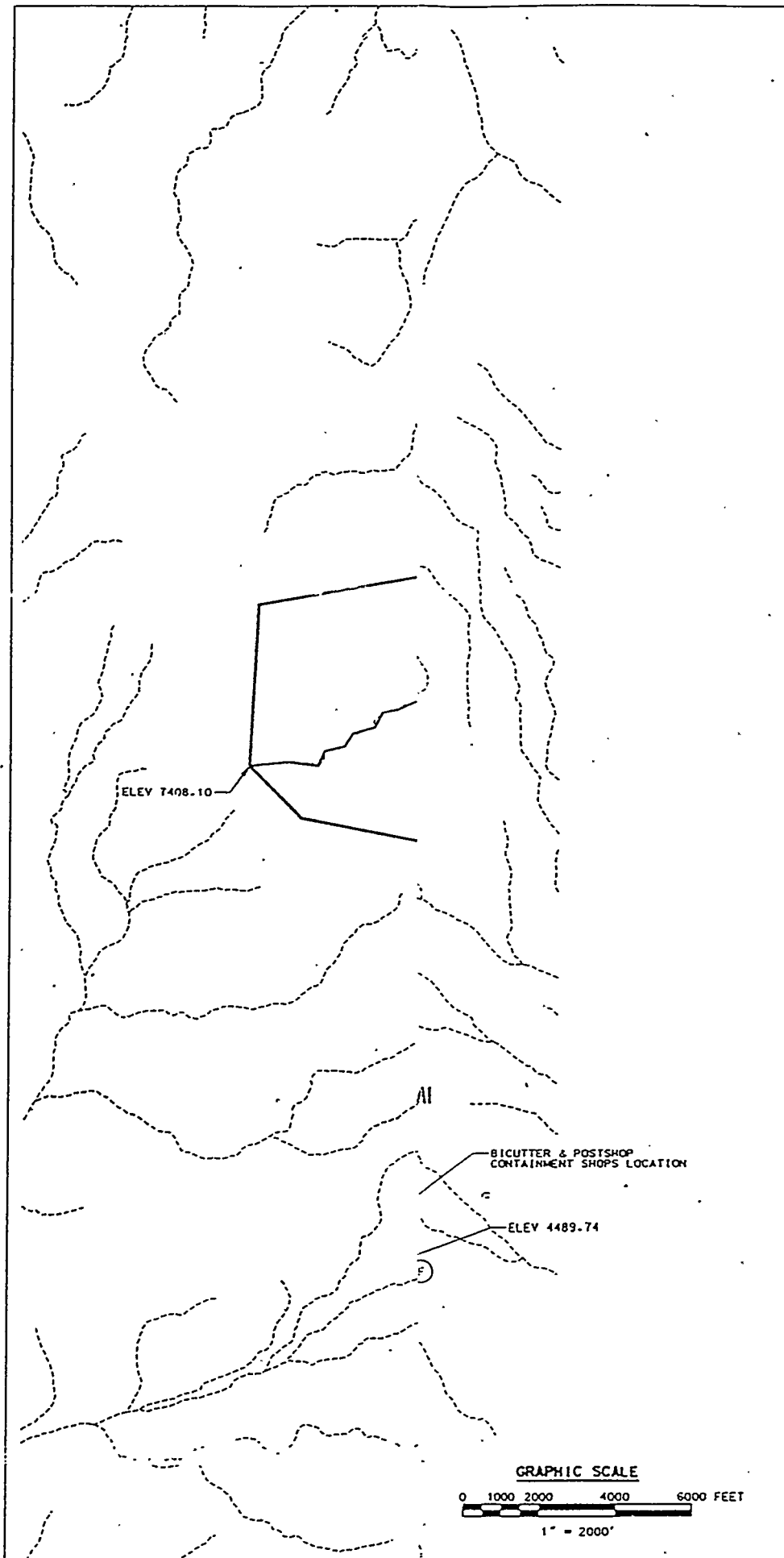
2/ Enter rainfall distribution type used.

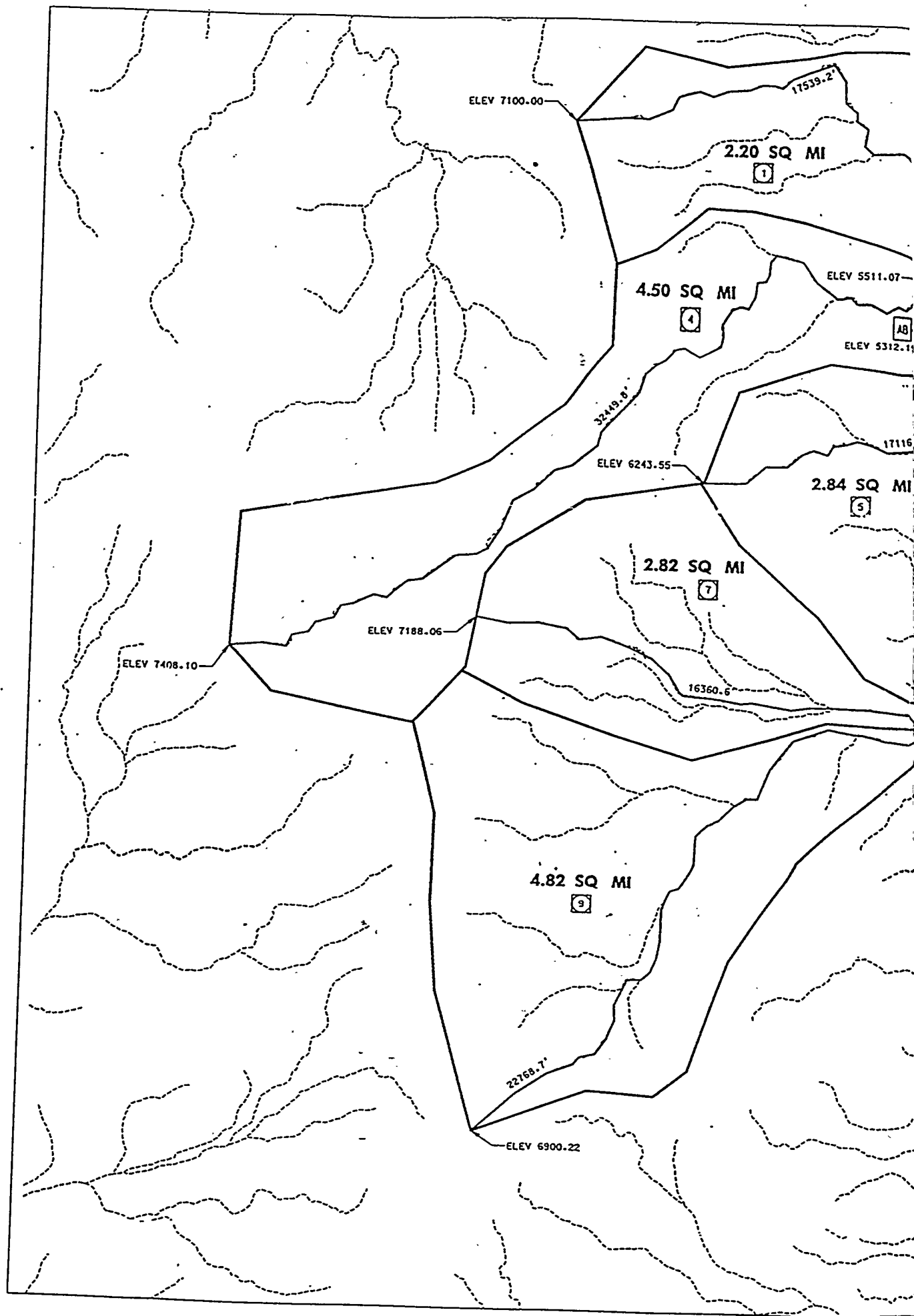
3/ Hydrograph discharge for selected time

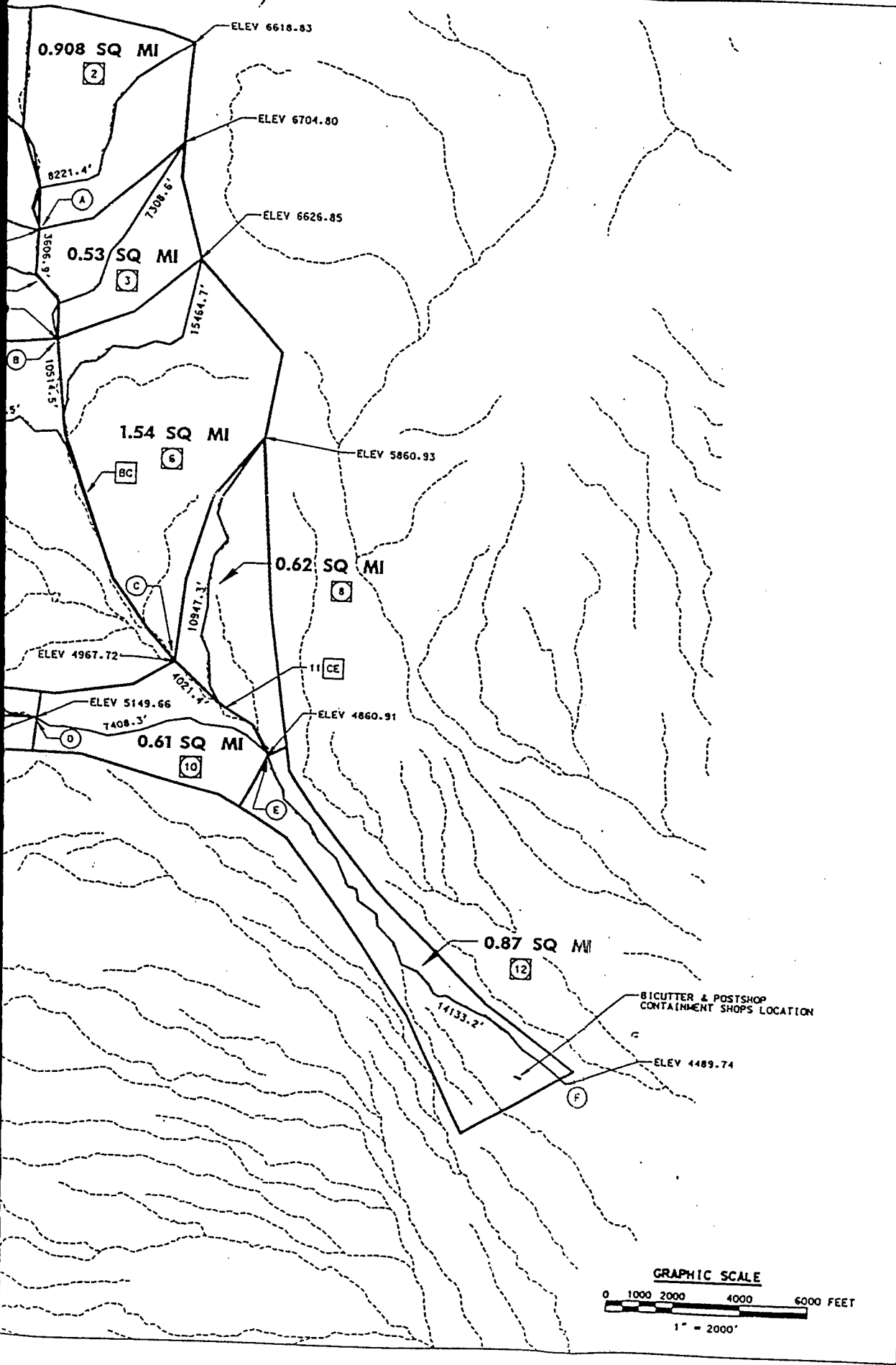
File 7-102

$G = 7701$

$$\therefore f = 0.05(7.01)^{2.5} = 2.51$$
$$f(1) = 9,108(1.01)^{100} = 337'$$
$$V = 1.51 (1721)^{1/2} = 9.04 \text{ fps}$$

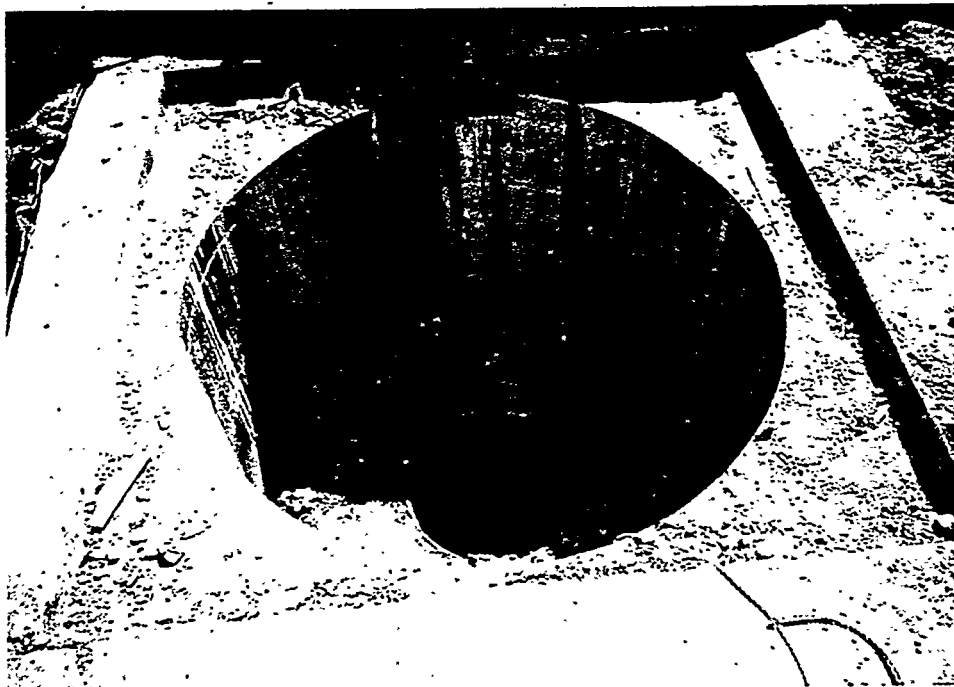






APPENDIX F

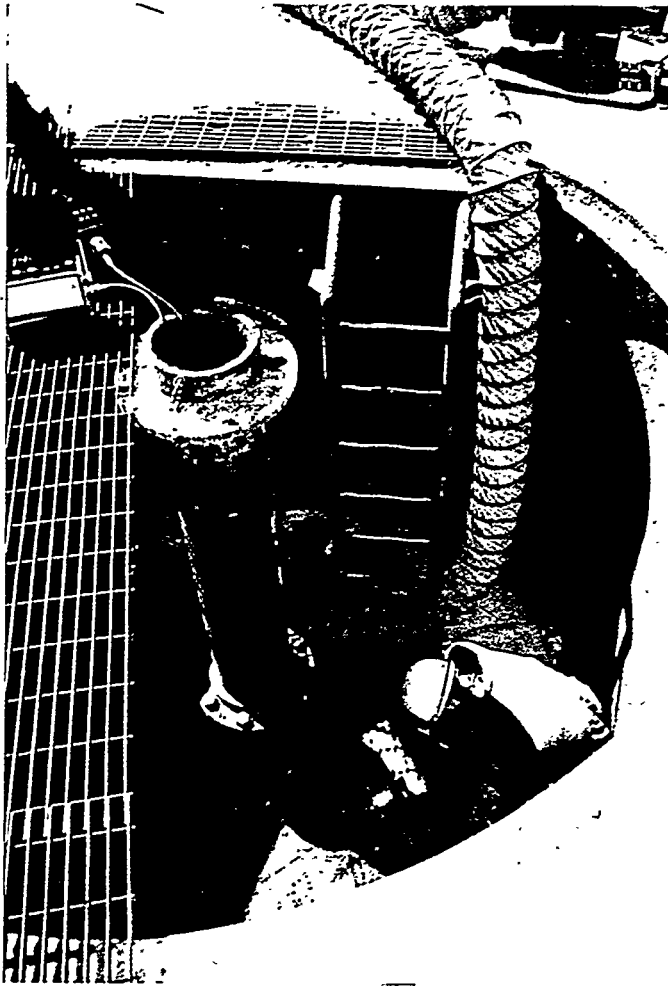
CLOSURE ACTIVITY PHOTOGRAPHS



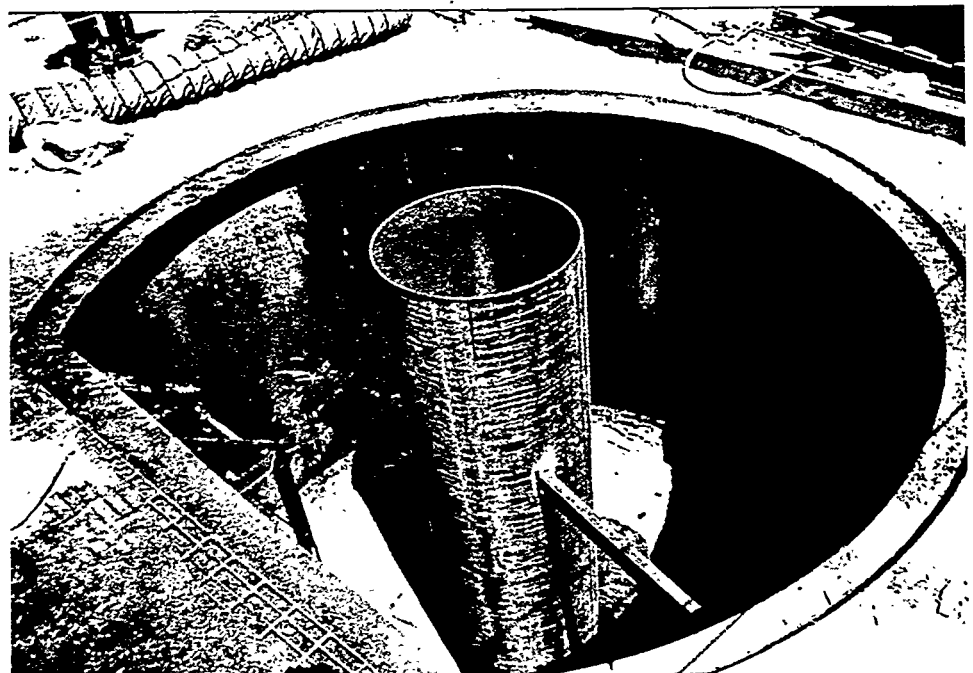
Bitcutter Inside Injection Well
prior to source removal
August 6, 1996



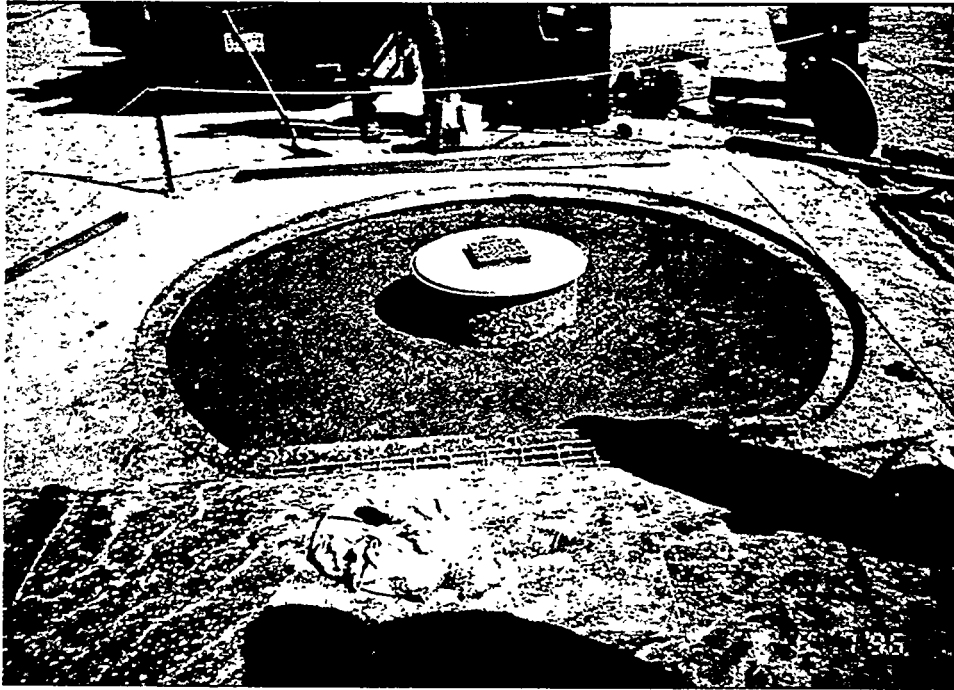
Bitcutter Inside Injection Well
source removal
August 6, 1996



Postshot Containment Shop
Injection Well
removal of surface casing
August 6, 1996



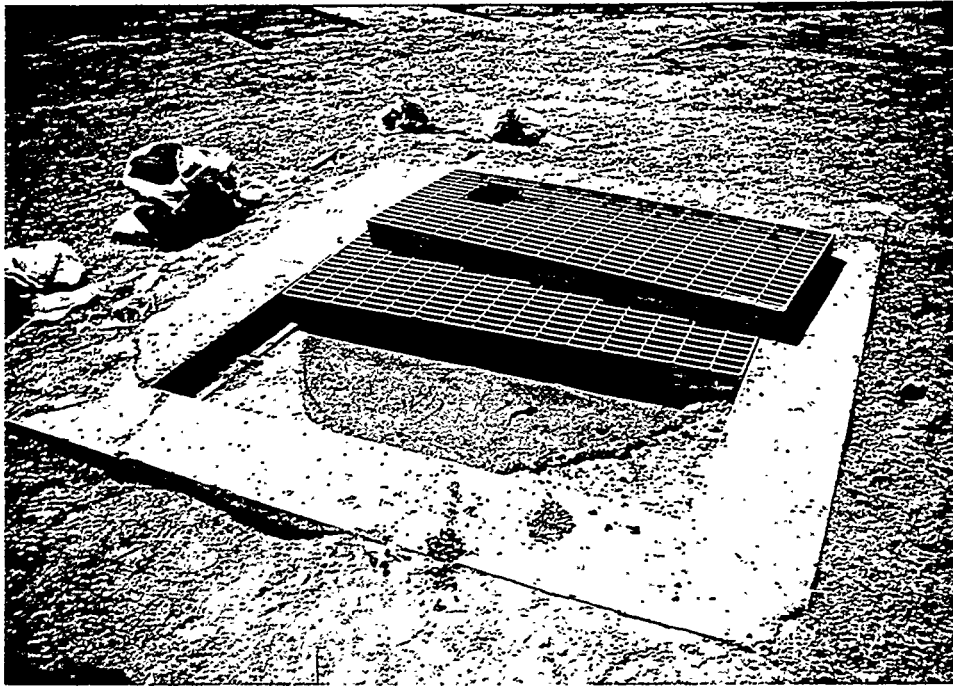
Postshot Containment Shop
Injection Well
new surface casing
August 7, 1996



Postshot Containment Shop
Injection Well
sump backfill complete
August 7, 1996



Postshot Containment Shop
Injection Well
source material removal
August 8, 1996



Bitcutter Inside Injection Well
grout plug complete
September 23, 1996



Bitcutter Inside Injection Well
grout cylinders for compressive strength tests
September 23, 1996



Bitcutter Inside Injection Well
concrete cover installation
September 24, 1996



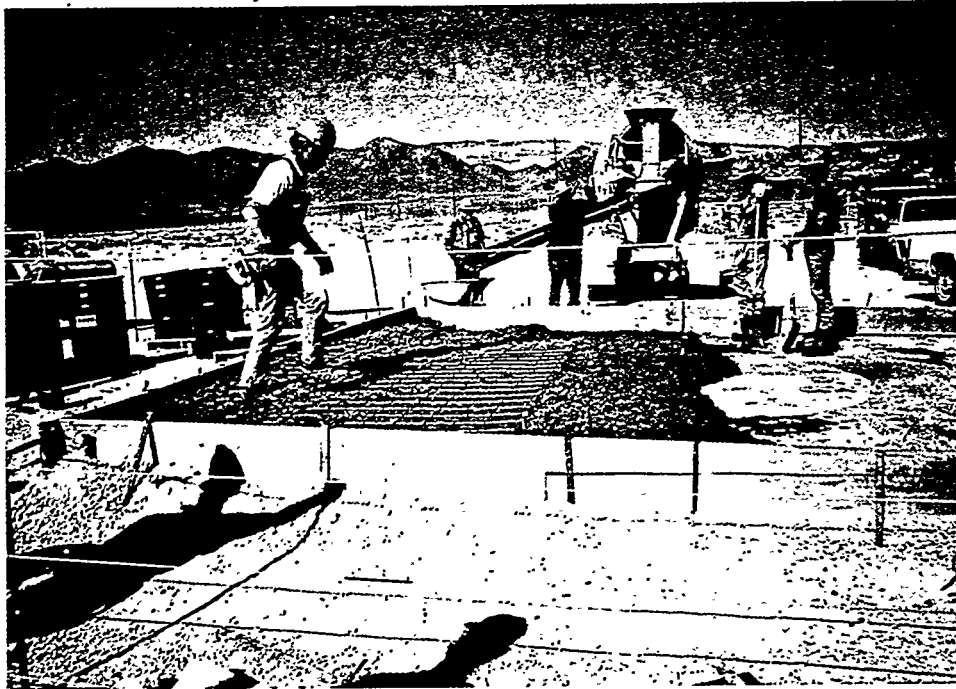
Bitcutter Inside Injection Well
concrete cylinders for compressive strength tests
September 24, 1996



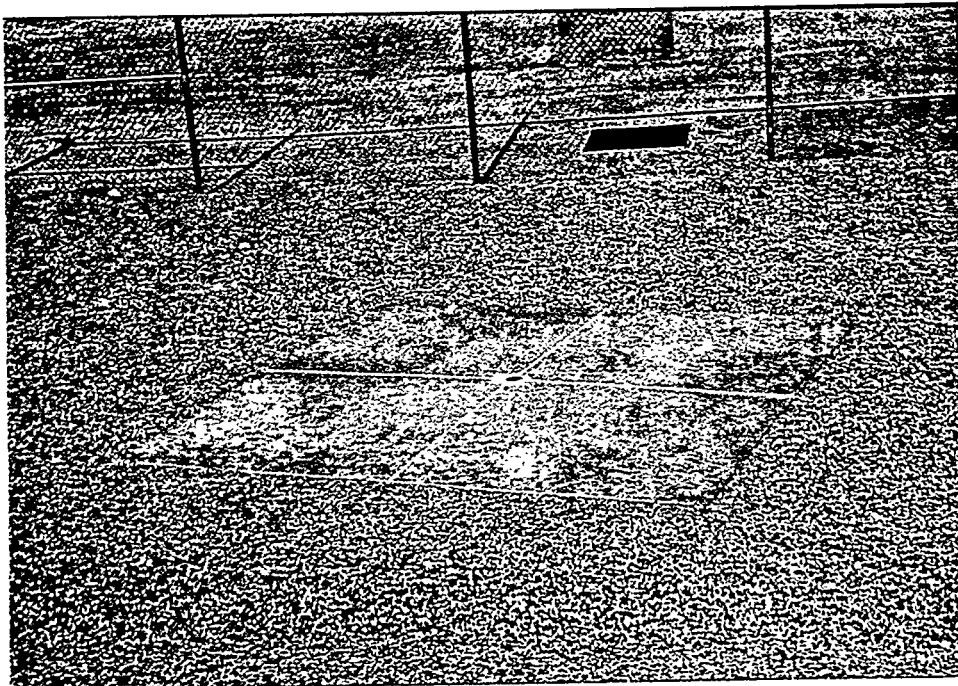
Bitcutter Outside Injection Well
concrete cover installation
September 24, 1996



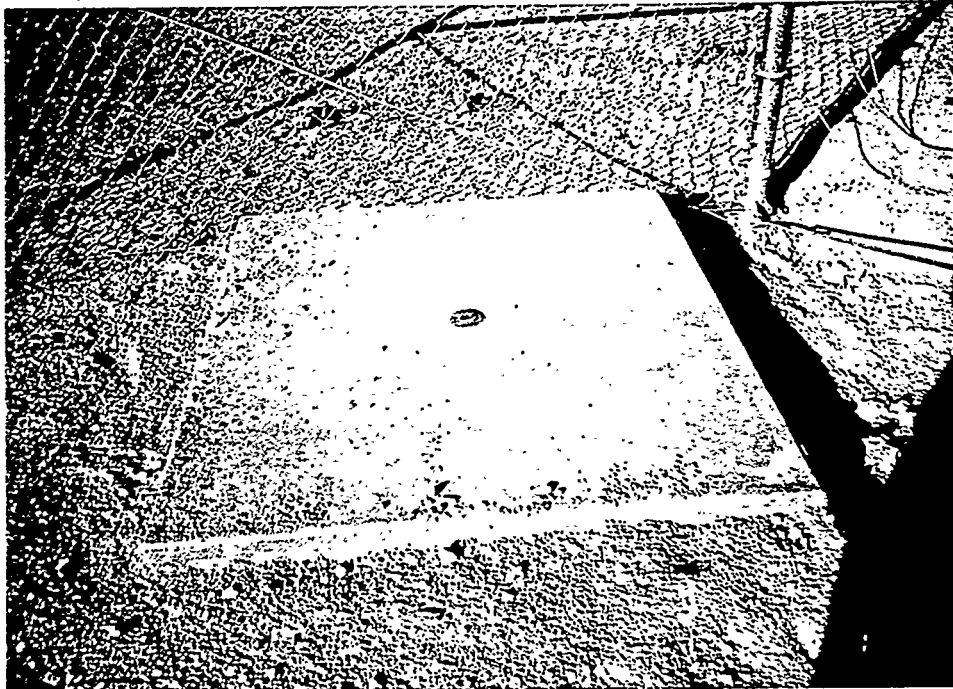
Postshot Containment Shop Injection Well
placement of grout plug
September 26, 1996



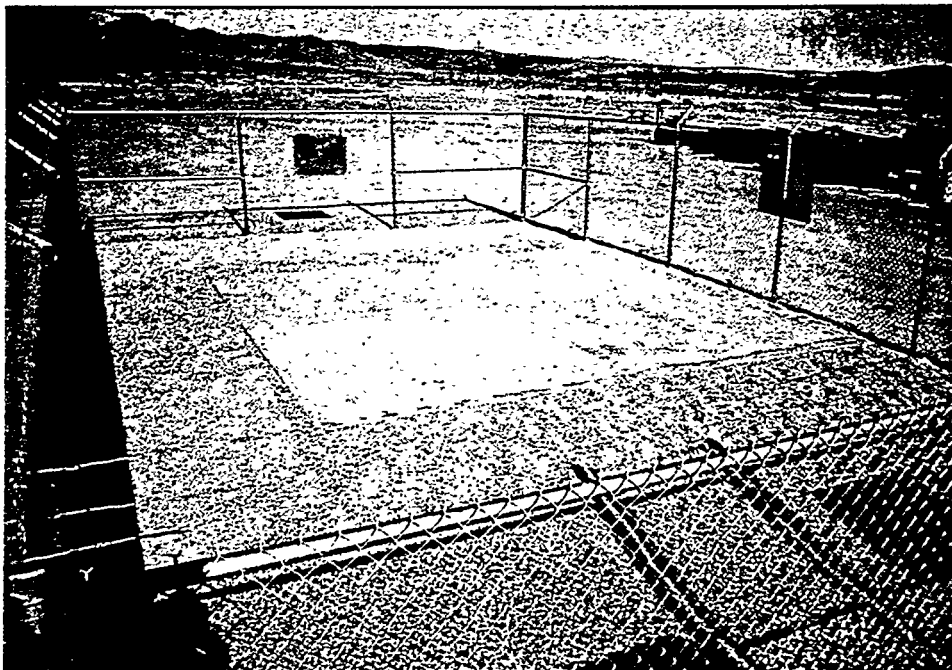
Postshot Containment Shop Injection Well
installation of concrete cover
September 27, 1996



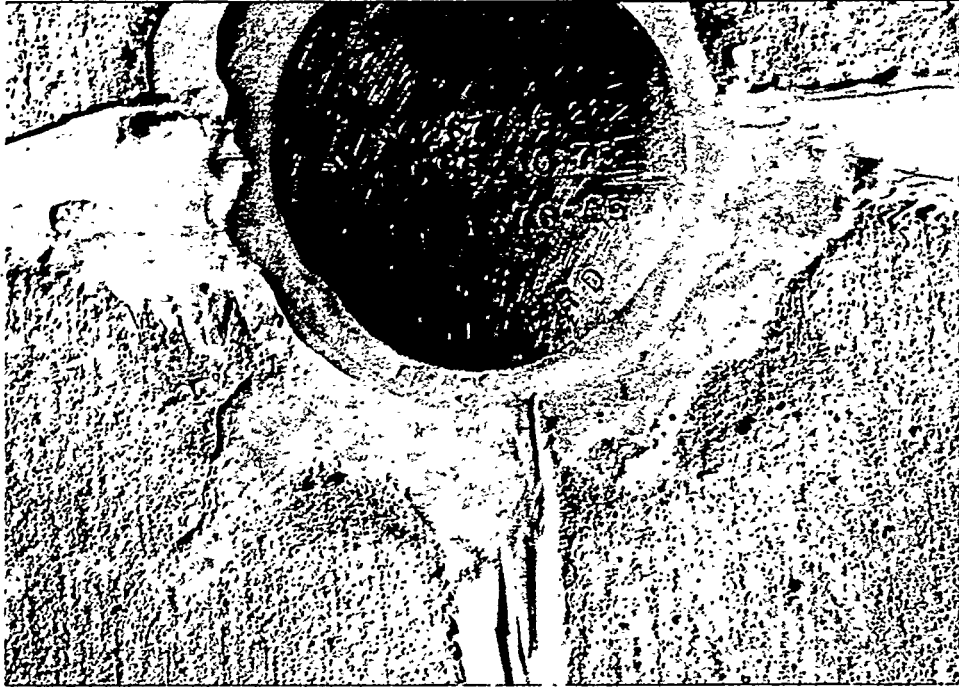
Bitcutter Inside Injection Well
completed concrete cover
November 7, 1996



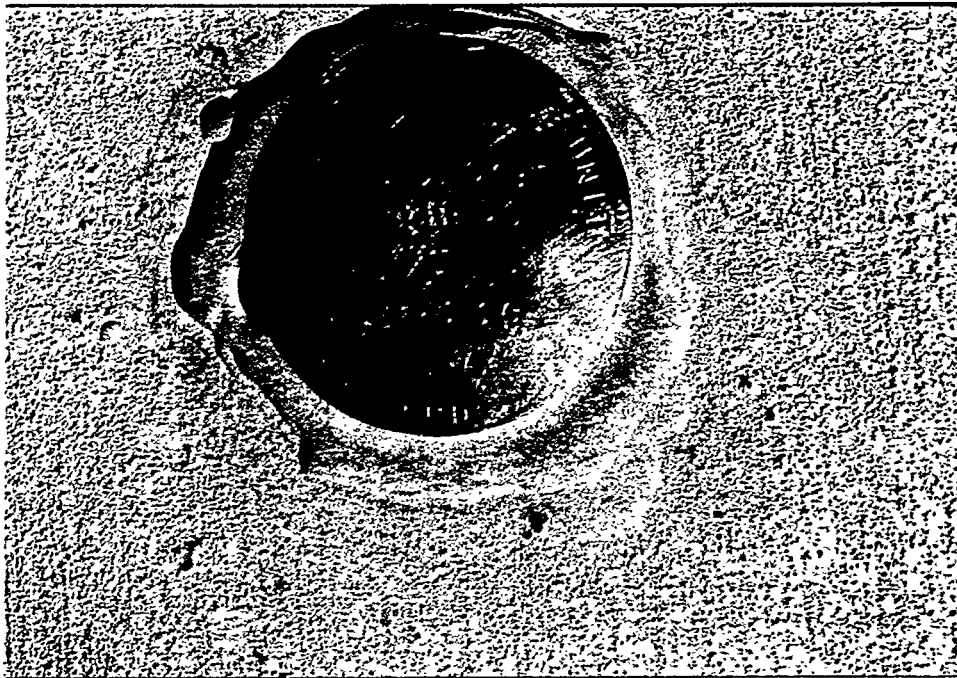
Bitcutter Outside Injection Well
completed concrete cover
October 1, 1996



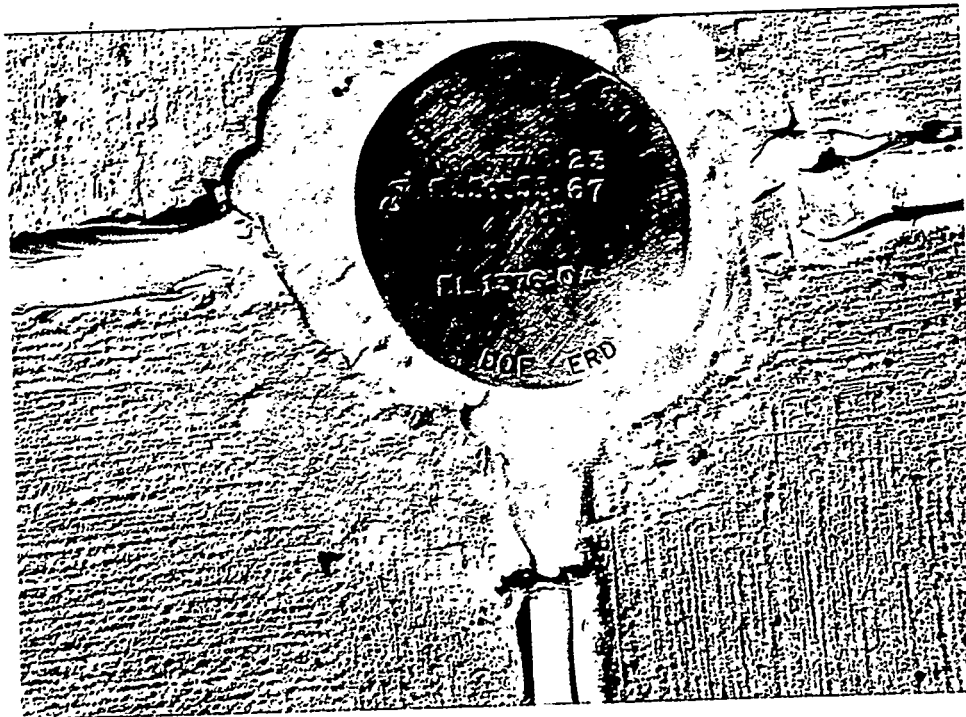
Postshot Containment Shop Injection Well
completed concrete cover
November 7, 1996



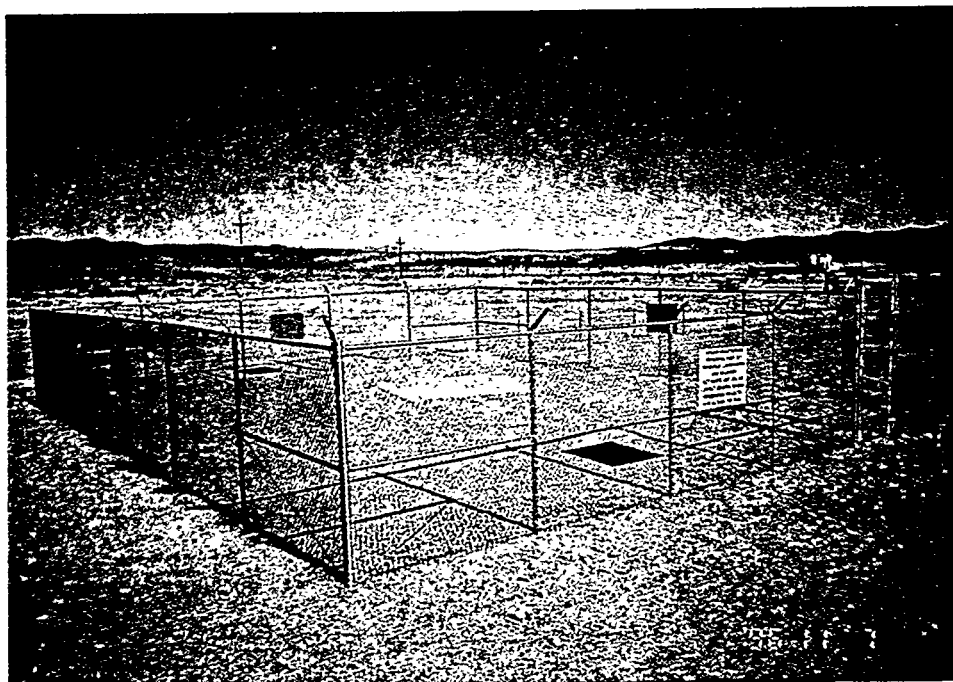
Bitcutter Inside Injection Well
CAU 90-A brass survey marker
October 21, 1996



Bitcutter Outside Injection Well
CAU 90-B brass survey marker
October 21, 1996



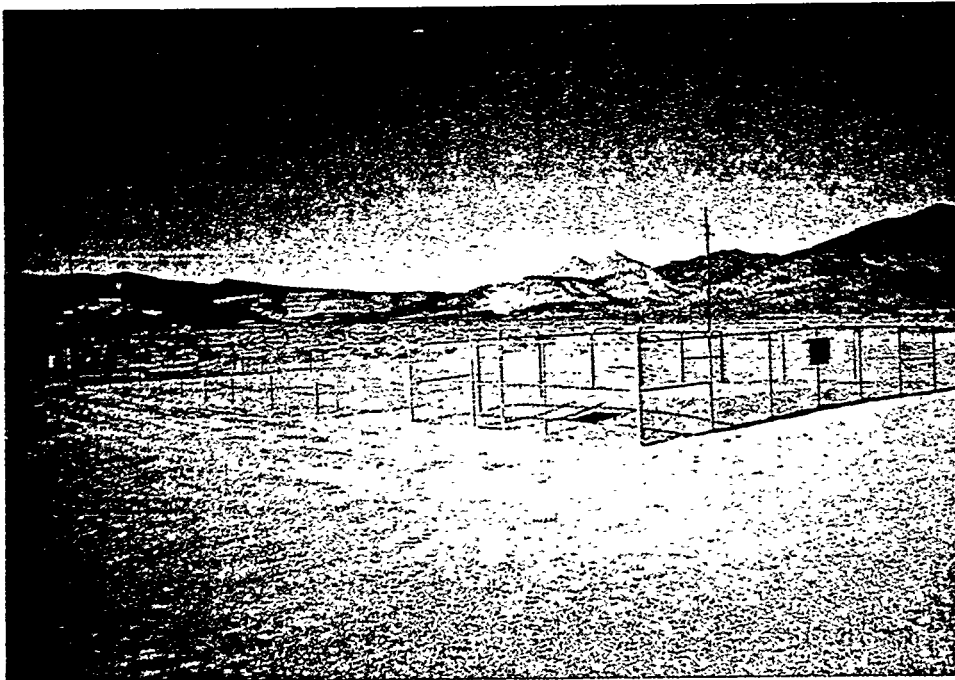
Postshot Containment Shop Injection Well
CAU 90-C brass survey marker
October 21, 1996



Bitcutter Inside Injection Well
chainlink fence and signs
November 7, 1996



Postshot Containment Shop Injection Well
chainlink fence and signs
November 7, 1996



Corrective Action Unit 90
November 7, 1996

APPENDIX G
CONSTRUCTION ACTIVITY REPORTS

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/05/96	Weather: CLEAR		Temperature: Low 52 High 93

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes No

THIS WILL BE CONSIDERED THE REPORT ON THIS PROJECT.

CAU 90-C WELL

WELDER BEGAN REMOVING THE EXISTING 10" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3.

Inspector's Signature

K. Powell

Date

8-6-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>FOR P.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/06/96	Weather: CLEAR		Temperature: Low 56 High 96

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
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CAU 90-C WELL

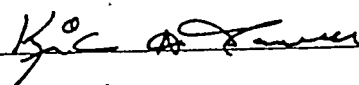
WELDER COMPLETED REMOVING THE EXISTING 10" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3.

NOTE: DRILLERS AND LABORS REMOVED APPROX. 135 GALLONS OF SLUDGE FROM WELL A.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature



Date 8-8-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>FOR D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/07/96	Weather: .CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 2	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
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CAU 90-C WELL

WELDER COMPLETED INSTALLING THE 24" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3
LABORS PLACED 13 CUBIC YARDS OF CONCRETE AROUND THE 24" PIPE SPOOL INSIDE OF CAU 90-C IN
ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number _____

Inspector's Signature

*K. Powell*Date 8-7-96

CONCRETE PRE-PLACEMENT

CONTRACTOR: BECHTEL P.A./I.P. NUMBER(S): N/A
 PROJECT: AREA 2 INJECTION WELLS AREA: 2
 WORK FEATURE: STEMMING
 SPECIFIC LOCATION: Well C
 REQUIRED STRENGTH: 3,000 PSI AT: 3,000, 28 DAYS
 CU. YARDS ESTIMATED: 13 CU. YARDS PLACED: 13
 SPEC. & DWG. NOS./OTHER INSPECTION CRITERIA: JS-002-133-C2

ITEM	INITIALS	DATE
FOUNDATION/SUBGRADE	<i>JH</i>	8-7-96
FORMWORK	N/A	
REINFORCEMENT STEEL	N/A	
EMBEDDED ITEMS/WATERSTOP	<i>JH</i>	8-7-96
JOINTS/ADJACENT CONCRETE	N/A	
PLUMBING	N/A	
ELECTRICAL	N/A	
MECHANICAL	<i>JH</i>	8-9-96
LINE, GRADE & ELEVATION	N/A	
CLEAN-UP	<i>JH</i>	8-7-96
PLACING/CONSOLIDATION EQUIPMENT	N/A	

ABOVE ITEMS ARE SATISFACTORY

YES [☒]

NO [☐]

REMARKS:

INSPECTOR:

Laurel Hughes, Eric A. Jones DATE: 8-7-96

CONCRETE PLACEMENT

CONTRACTOR: BEECHTE! P.A./W.O. NUMBER(S): N/A
 PROJECT: AREA 2 INJECTION WELLS AREA: 2
 LOCATION: AREA 2
 DATE: 8-7-96 WEATHER: CLEAR (HOT)
 M & TE USED: N/A CALIBRATION DUE DATE: N/A
 NCR/CD CONDITION: N/A MIX TYPE: 92A1-2A
 START TIME: 14:37 COMPLETION TIME: 15:30

ITEM	INITIALS	DATE
PREPLACEMENT INSPECTION COMPLETED	<i>X/lt</i>	8-7-96
VERIFIED BATCH TICKET INFORMATION	<i>X/lt</i>	8-7-96
TEST FREQUENCY/RESULTS	<i>X/lt</i>	8-7-96
TRANSPORTING/DISCHARGING CONCRETE	<i>X/lt</i>	8-7-96
SURFACES RECEIVING CONCRETE	<i>X/lt</i>	8-7-96
CONCRETE CONVEYANCE	<i>X/lt</i>	8-7-96
CONCRETE DEPOSITION	<i>X/lt</i>	8-7-96
PLACING METHODS	<i>X/lt</i>	8-7-96
CONSOLIDATION OF CONCRETE	<i>X/lt</i>	8-7-96
SHEATHING CLEARANCE INTEGRITY	<i>X/lt</i>	8-7-96
PLACING/CONSOLIDATION EQUIPMENT	<i>N/A</i>	

ABOVE ITEMS ARE SATISFACTORY

YES [☒]

NO [☐]

REMARKS:

INSPECTOR:

Samuel Hughes & Co. A. J. J. J.

DATE:

8-7-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/08/96	Weather: CLEAR		Temperature: Low 56- High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 2	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
-------------	--	-----	----

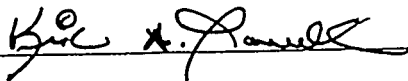
CAU 90-C WELL

LABORS BEGAN CLEANING OUT THE SLUDGE FROM THE BOTTOM OF CAU-90-C WELL.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number.

Inspector's Signature



Date 8-8-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>FOR D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/13/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 8/9/96 TO 8/13/96

CAU 90-C WELL

OPERATORS BEGAN DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND AREA IN ACCORDANCE WITH
DWG.JS-002-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number:

Inspector's Signature K. A. Powell

Date 8-15-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/14/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

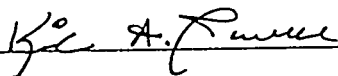
Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90-C WELL

OPERATORS CONTINUE DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND AREA IN ACCORDANCE WITH
DWG.JS-002-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Inspector's Signature



Date

8-15-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P No's: N/A
Date: 08/15/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90- (A) AND (C) WELL

OPERATORS COMPLETED DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND WELL (A) AND WELL(C),
LABORERS AND IRON WORKERS SET POSTS IN CONCRETE IN ACCORDANCE WITH DWG.JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number:

Inspector's Signature

Date 8-19-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/19/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

THERE WAS NO CONSTRUCTION ACTIVITY FROM 8-15-96 TO 8-19-96 DUE TO WEEKEND**AU 90- (A) AND (C) WELL****IRON WORKERS CONTINUE ERECTING FENCE IN ACCORDANCE WITH DWG.JS-002-133-C2****NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED**

Index Number:

Inspector's Signature [Signature]Date 8-20-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/20/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90- (A) AND (C) WELL

IRON WORKERS BEGAN INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

LABORS TAGGED "C" WELL DEPTH AT 47' IN ACCORDANCE WITH INSPECTION TESTING RESPONSIBILITY MATRIX DATED 7-31-96.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number

Inspector's Signature

[Signature]

Date 8-21-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/21/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
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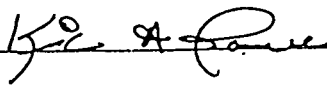
CAU 90- (A) AND (C) WELL

IRON WORKERS CONTINUE INSTALLING #10 (2' X 2') CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature



Date 8-26-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/22/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

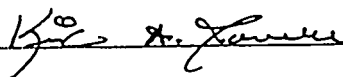
CAU 90- (A) AND (C) WELL

IRON WORKERS CONTINUE INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature



Date 8-26-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON <i>[initials]</i>	P.A./I.P. No's: N/A
Date: 09/12/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 3	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY ON THIS PROJECT REQUIRING INSPECTION FROM 8/22/96 TO 9/12/96.

CAU 90- (C) WELL

DRILLERS AND LABORS TAGGED WELL "C" AT 44 FEET, THEN BEGAN DRILLING TO 49 FEET IN ACCORDANCE WITH DWG.JS-002-133-C2.

NOTE: ONE CORE SAMPLE WAS TAKEN BETWEEN 49 AND 51 FEET, SAMPLE WAS BLACK SLUDGE. ONE SAMPLE WAS TAKEN BETWEEN 51 AND 53 FEET, SAMPLE WAS BLACK SLUDGE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index number: _____

Inspector's Signature

*K. Powell*Date 9-16-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/16/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 3	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY FROM 9/13/96 TO 9/16/96 DUE TO WEEKEND.

CAU 90- (C) WELL

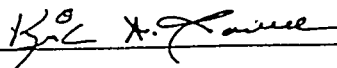
DRILLERS TOOK TWO CORE SAMPLE FROM WELL (C), IN ACCORDANCE WITH DWG.JS-002-133-C2.

NOTE: ONE CORE SAMPLE WAS TAKEN BETWEEN 53 AND 55 FEET, SAMPLE WAS BLACK GRANULATED SLUDGE.
DRILLERS DRILLED TO 55.5 FEET AND A SAMPLE WAS TAKEN FROM THE DRILL BIT, SAMPLE WAS SAND..

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: -- -- --

Inspector's Signature

Date 9-19-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/23/96	Weather: CLEAR		Temperature: Low 56 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 9/17/96 TO 9/23/96.

CAU 90- (A) WELL

TAGGED WELL (A) AT 49.5 FEET AND FILLED WITH DIPOLE HAIL HIGH STRENGTH GROUTCRETE TO TOP OF EXISTING CONCRETE SLAB, SIX (6) CUBIC YARDS WAS PLACED IN ACCORDANCE WITH DWG. JS-002-133-C2. AND DCN # NLV-96-200AB.

NOTE: BECHTEL MATERIAL TEST LAB SAMPLED THE GROUT MATERIAL, TEST RESULTS TO FOLLOW.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number _____

Inspector's Signature [Signature]

Date 9-24-96

CONCRETE/GROUT PLACEMENT RECORD

Bechtel Nevada

Page 1 of 1

INSPECTOR K. Powell

LOCATION AREA 2 CAU 90-A

DATE 9-23-96

STRUCTURE Bitcutter Injection well-A

WEATHER Clear

EST. VOL. 6 CU. YDS.

AMB. TEMP. 78°

ACT. VOL. 6 CU. YDS:

REQ. STR. 3,000 @ 28 days

DESIGN NO. DHHS4

ID NUMBER

DHHSU ~~3~~
Dipole HAIL High Strength GROUTCRETE (GYP)

UNLESS OTHERWISE NOTED ALL ITEMS VERIFIED ON THIS DOCUMENT CONFORM TO APPROVED CRITERIA

INSPECTOR'S INITIALS.

[illegible]

REMARKS

CERTIFICATION OF DRY MATERIALS BATCH WEIGHT

HOLE: BIT CUTTER

DATE: 9/23/96

MIXTURE DESIGN: HIGH STRENGTH GROUTCRETE (GYP)

TRUCK NO.: B1701

BATCH SIZE (FT³): _____

3 T E A R

CHEM COMP	<u> </u>	POUNDS
TYPE II	<u>4570</u>	POUNDS
W-60	<u>170</u>	POUNDS
FLY ASH	<u>2570</u>	POUNDS
A1 CONCRETE SAND	<u>10050</u>	POUNDS
D-19	<u>57</u>	POUNDS
PLASTIMENT	<u>1.7 GAL</u>	POUNDS

MIX TIME	<u>1120</u>	HOUR / DATE
WEIGHT/GAL	<u>16.5</u>	POUNDS
GROUT TEMP	<u>54</u>	°F
WATER	<u>5.95</u>	BARRELS
ICE	<u>1200</u>	POUNDS

H. R. Tuttle
VERIFIED BY



Reynolds Electrical & Engineering Co., Inc.

CEMENT MATERIAL WEIGHT SHEET

CONTROL NO. _____

DATE 7-18-96

LOCATION A-12 BP

USER _____

UNIT NO. 83282

DRIVER _____

FRONT TIER

SLURRY TYPE DHHS9

DHHS9 ③
162

REAR TIER

SLURRY TYPE DHHS9

PRODUCT #	SILO NO.	TYPE	WEIGHT
PRODUCT #1	<u>19</u>	<u>Fly Ash</u>	<u>2570</u>
PRODUCT #2	<u>5</u>	<u>Type A</u>	<u>4570</u>
PRODUCT #3	<u>22</u>	<u>C-60</u>	<u>170</u>
PRODUCT #4	_____	_____	_____
PRODUCT #5	_____	_____	_____
PRODUCT #5	_____	_____	_____
ADDITIVE #1	_____	_____	_____
ADDITIVE #2	_____	<u>D-19</u>	<u>57</u>
ADDITIVE #3	_____	_____	_____
ADDITIVE #4	_____	_____	_____

TOTALS

CU. FT. SLURRY 162

WEIGHT 7367

TIME STARTED _____

TIME ENDED _____

BATCH NO'S. 304

BULK PLANT OPERATOR [Signature]

INSPECTOR _____

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/24/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S): 1	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU-90- (A) (B) WELLS.

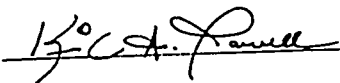
THIS INSPECTOR WITNESSED THE PLACEMENT OF 92-A1-2A CONCRETE FOR CAPING THE WELLS, 4.5 CUBIC YARDS WAS PLACED IN ACCORDANCE TO DWG. JS-002-133-C3 ,

NOTE: FIVE 6" X 12" CONCRETE SAMPLES WERE TAKEN.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 9-25-96

INSPECTOR K. Powell

ID NUMBER _____

UNLESS OTHERWISE NOTED ALL ITEMS VERIFIED ON THIS DOCUMENT CONFORM TO APPROVED CRITERIA

[illegible]

REMARKS

CONCRETE
PREPLACEMENT
RECORD



DATE: 9-24-96

CONTRACTOR: BECHTEL NEVADA CONTWNO NO. [REDACTED]
 PROJECT: AREA 2 - 2 INJECTION WELLS AREA: AREA 2
 WORK FEATURE/DRAWING NO. 55-002-133-C3
 SPECIFIC LOCATION: WELLS A+B AREA-2
 SUBGRADE COMPACTION REQUIRED N/A
 REQUIRED CONCRETE STRENGTH: 3,000 PSI AT 28 DAYS.
 CU. YDS. ESTIMATED: 4.5 CU. YDS PLACED: 4.5

PLACEMENT CHECKLIST

ITEM	SUPERINTENDENT	INSPECTOR	DATE	COMMENTS
EXCAVATION		<u>2/10</u>	<u>9-24-96</u>	
COMPACTION		<u>2/10</u>	<u>9-24-96</u>	
FORM WORK		<u>2/10</u>	<u>9-24-96</u>	
STEEL		<u>2/10</u>	<u>9-24-96</u>	
EMBEDDED ITEMS		<u>2/10</u>	<u>9-24-96</u>	
JOINTS		<u>2/10</u>	<u>9-24-96</u>	
PLUMBING		<u>N/A</u>		
ELECTRICAL		<u>N/A</u>		
MECHANICAL		<u>N/A</u>		
CONCRETE MIX DESIGN		<u>2/10</u>	<u>9-24-96</u>	
PLACING EQUIPMENT		<u>2/10</u>	<u>9-24-96</u>	
GRADES AND ELEVATION		<u>2/10</u>	<u>9-24-96</u>	

CURE PROTECTION APPLIED YES ☒ NO ☒ TYPE

LIST NUMBER OF CYLINDERS MADE AND LOCATION IN PLACEMENT

FIVE (5) 6" X 12" CYLINDERS TAKEN FROM
MIDDLE OF LOAD.

LIST NONCONFORMING ITEMS NONE

INSPECTOR [Signature]

BECHTEL NEVADA

Bechtel Nevada
Material Testing Laboratory
P. O. BOX 98521, M/S NTS188
Las Vegas, NV 89193-8521

WORK REQUEST FOR SOILS, CONCRETE & ASPHALT TESTING

PROJECT: CAU-90 Bitcutter Injection Wells CHARGE #: _____ REQUEST NO: _____
REQUESTED BY: J. Pedalino USER/AGENCY: _____
FILLED OUT BY: K. Powell MTL LAB NO: _____
DATE REQUESTED: _____ TIME: _____ DATE TO BE COMPLETED: _____
TYPE OF MATERIAL: 92A1-2A SOURCE OF MATERIAL: A-1
SAMPLES RECEIVED BY: _____ RETURN MATERIALS AFTER TESTING? Y ☐ N ☒
SPECIFICATION REQUIREMENTS: _____

TEST PROCEDURES:
(if not listed below)

SOILS

- | | |
|--|--|
| ☐ ABSORPTION
C127-88 / C128-93 | ☐ PERCENT POROSITY
D853-90 / C29-91 |
| ☐ ANGLE OF REPOSE
LLNL SPECS | ☐ PERMEABILITY
D2434-94 |
| ☐ ATTERBURG LIMITS
D4318-95 | ☐ PROCTOR-MODIFIED
D1557-91 |
| ☐ C.B.R.
D1883-94 | ☐ PROCTOR STANDARD
D-698-91 |
| ☐ CONSOLIDATION
D2435-90 | ☐ SAND EQUIVALENT
D2419-91 |
| ☐ DIRECT SHEAR
D3080-90 | ☐ SHRINKAGE
D427-93 |
| ☐ FOAMING AGENT
REECO CE2058A | ☐ SOIL CLASS D1140-92
D2487-93 / D3282-93 |
| ☐ GRADATION D1140-92
C136-95 / C117-95 | ☐ SPECIFIC GRAVITY D854-92
C127-88 / C128-93 |
| ☐ GRAIN DENSITY
D854-92 | ☐ UNIT WEIGHT
C29m-91 |
| ☐ HYDROMETER ANALYSIS
D422-90 | ☐ VISCOSITY
API SPEC 13A 1988 |
| ☐ LA ABRASION
C131-89 | ☐ OTHER-SEE REMARKS |
| ☐ MOISTURE
D2216-92 / C566-89 | |

CONCRETE

- | |
|---|
| ☐ CONCRETE MIX DESIGN
ACI 211-91 |
| ☒ COMPRESSIVE STRENGTH
C39-94 |
| ☐ FLEXURAL STRENGTH
C78-94 / C293-94 |
| ☐ LENGTH CHANGE C157-93
C174-91 / C490-93 |
| ☐ SAMPLING CONCRETE
C172-90 |
| ☐ SPECIAL STUDY |
| ☐ SPLITTING TENSILE
C42-94 / C496-94 |
| ☐ OTHER-SEE REMARKS |

ASPHALT

- | |
|--|
| ☐ ASPHALT MIX DESIGN |
| ☐ % ASPHALT
D2172-93 |
| ☐ MARSHALL
D1559-89 |
| ☐ OTHER-SEE REMARKS |

FIELD

- | |
|--|
| ☐ BATCH PLANT EVAL |
| ☐ CORING
D653-90a |
| ☐ DRILLING |
| ☒ NUCLEAR DENSITY
D2922-91 / D3017-88 |
| ☐ # OF TESTS |
| ☐ # OF RETESTS |
| ☐ PENETROMETERS
D1586-92 |
| ☐ PERCOLATION
NAC 444.796.1 & 2 |
| ☐ PLATE LOAD BEARING
D1196-93 |
| ☐ SAND CONE DENSITY
D1556-90 |
| ☐ SEISMIC STUDY
D653-90a |
| ☐ OTHER-SEE REMARKS |

MIX NO.: 6 92A1-2A SPECIFICATION REQUIREMENTS: 4,000
CYLINDERS: # MADE 5 SIZE 6x12 DATE MADE 9-24-96 TEST @ DAYS 7 & 28
BREAK LAB# _____ ON _____ LAB# _____ ON _____
BREAK LAB# _____ ON _____ LAB# _____ ON _____
REMARKS _____

NOTE: No samples will be accepted unless accompanied by a completed request form.
A realistic completion date is required to schedule testing.

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: D. VINCENT	Insp. Supv.: L. D. JOHNSON <i>[Signature]</i>	P.A./I.P. No's: N/A
Date: 09/26/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 1	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description

The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY ON 9-25-96 THAT REQUIRED AN INSPECTION REPORT.

CAU-90 (C) WELL

TAGGED WELL AT 55.5 FEET AND USED SIX (6) CU/YDS OF DIPOLE HAIL HIGH STRENGTH GROUTCRETE TO FILL WELL TO TOP OF EXISTING CONCRETE SLAB IN ACCORDANCE WITH DRAWING JS-002-133-C2 & DCN # NLV-96-200AB.

NINE (9) EACH 3" X 6" TEST CYLINDERS AND ONE (1) SET OF EXPANSION BARS WAS MADE AND TAKEN TO THE BECHTEL MATERIAL TEST LAB. RESULTS WILL BE REPORTED WHEN AVAILABLE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number:

Inspector's Signature *Dillard F. Vincent*

Date 9-26-96

REMARKS

CERTIFICATION OF DRY MATERIALS BATCH WEIGHT

HOLE: BITCUTTER A-2 INJECTION WELL "C" DATE: 9-26-96

MIXTURE DESIGN: Dipole HAIL H. STRENGTH GROUTCRETE TRUCK NO.: 81702
(GYP)

BATCH SIZE (FT³): 162 4 TEAR

CHEM COMP	<u>-</u>	POUNDS
TYPE II	<u>4570</u>	POUNDS
W-60	<u>170</u>	POUNDS
FLY ASH	<u>2570</u>	POUNDS
A1 CONCRETE SAND	<u>10050</u>	POUNDS
D-19	<u>57</u>	POUNDS
PLASTIMENT	<u>1.7 GAL.</u>	POUNDS

MIX TIME	<u>1845</u>	HOUR / DATE
WEIGHT/GAL	<u>17.1</u>	POUNDS
GROUT TEMP	<u>47</u>	°F
WATER	<u>180</u>	BARRELS GAL.
ICE	<u>1200</u>	POUNDS


VERIFIED BY

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: 09-27-96	Inspector: D. VINCENT	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/27/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN: 1	IRWN(R): 1	WRMN:	MASN: 2	SHMT:
TMRS: 2	SURV:	LABR: 1	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
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CAU-90 (C) WELL

LABORERS AND FINISHERS PLACED SEVENTEEN (17) CU/YDS OF TYPE 92A1-A2 CONCRETE IN FORMS TO CAP CAU-90 (C) WELL IN ACCORDANCE WITH DRAWING JS-002-133-C2 & DCN # NLV-96-200AB.

FIVE (5) EACH 6" X 12" COMPRESSION TEST CYLINDERS WAS MADE AND TAKEN TO THE BECHTEL MATERIAL TEST LAB. RESULTS WILL BE REPORTED WHEN AVAILABLE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature Dillard F. VincentDate 9-27-96

CONCRETE
PREPLACEMENT
RECORD

Bechtel Nevada

DATE: 9-27-96

CONTRACTOR: BECHTEL NEVADA CONTWNO NO. [REDACTED]
 PROJECT: AREA 2 INJECTION WELLS AREA: 2
 WORK FEATURE/DRAWING NO. POSTSHOT CONTAINMENT WELL CAP JS-002-133-C3
 SPECIFIC LOCATION: CAU 90 WELL "C"
 SUBGRADE COMPACTION REQUIRED N/A
 REQUIRED CONCRETE STRENGTH: 3000 PSI AT 28 DAYS.
 CU. YDS. ESTIMATED: 16 CU. YDS PLACED: 17

PLACEMENT CHECKLIST

ITEM	SUPERINTENDENT	INSPECTOR	DATE	COMMENTS
EXCAVATION		<u>D.F. U</u>	<u>9-27-96</u>	
COMPACTION		<u>N/A</u>		
FORM WORK		<u>D.F. U</u>	<u>9-27-96</u>	
STEEL		<u>D.F. U</u>	<u>9-27-96</u>	
EMBEDDED ITEMS		<u>N/A</u>		
JOINTS		<u>D.F. U</u>	<u>9-27-96</u>	
PLUMBING		<u>N/A</u>		
ELECTRICAL		<u>N/A</u>		
MECHANICAL		<u>N/A</u>		
CONCRETE MIX DESIGN		<u>D.F. U</u>	<u>9-27-96</u>	
PLACING EQUIPMENT		<u>D.F. U</u>	<u>9-27-96</u>	
GRADES AND ELEVATION		<u>D.F. U</u>	<u>9-27-96</u>	

CURE PROTECTION APPLIED YES ☒ NO ☐ TYPE _____

LIST NUMBER OF CYLINDERS MADE AND LOCATION IN PLACEMENT 5 6x12 tubes
from 1st truck

LIST NONCONFORMING ITEMS N/A

INSPECTOR Dillard F. Oliver
 BECHTEL NEVADA

REMARKS

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/01/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV: 3	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 9/28/96 TO 10/01/96.

CAU-90 (A) (B) (C) WELLS.

OPERATORS AUGERED POST HOLES AROUND WELL (C) AND PLACING CRUSHED ROCK AROUND WELL (C) WELL (A), AND WELL (B.) SURVEY DEPARTMENT PLACED BRASS CAP MONUMENTS ON WELL (C,) WELL (A,) AND WELL (B) IN ACCORDANCE TO DWG. JS-002-133-C2.

NOTE: ON CONSTRUCTION REPORT NUMBER 9 THIS INSPECTOR STATED THAT THE LABORS TAGGED WELL (C) AT 47 FEET DEEP WHICH INFACIT WELL (C) WAS TAGGED AT 44 FEET DEEP OF 24" BOREHOLE AND CONTINUED TO 55.5 FEET OF 6 1/2" DIA. BOREHOLE WHICH IS THE TOTAL DEPTH.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

*K. Powell*Date 10-1-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P No's: N/A
Date: 10/02/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S): 1	DRILLING	OTHERS:

Description

The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU-90 (A) (B) (C) WELLS.

OPERATORS PLACING CRUSHED ROCK AROUND WELL (C) WELL (A), AND WELL (B). LABORS AND IRON WORKERS SET FENCE POSTS IN CONCRETE AROUND WELL (C) AREA IN ACCORDANCE TO DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number

Inspector's Signature

[Signature]

Date 10-3-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/14/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV: 2		LABR:	LNMN:	PNTR:
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/02/96 TO 10/14/96

CAU-90 (A) (B) (C) WELLS.

BECHTEL SURVEY DEPARTMENT PLACED BRASS SURVEY MARKERS ON WELL (C), (A), AND (B). IN ACCORDANCE TO DWG. JS OO2-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature [Signature]

Date 10-16-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON <i>[Signature]</i>	P.A./I.P. No's: N/A
Date: 10/23/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV: 2	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
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THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/15/96 TO 10/23/96**CAU-90 (A) (B) WELLS.**

IRONWORKERS COMPLETED INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON THE EAST SIDE OF THE FENCE AROUND WELLS (A) & (B) IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature *K. Powell*Date 10-24-96

Construction Activity Report

Page **1** of **1**

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/24/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description

The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU-90 (C) WELL.

IRONWORKERS INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AROUND WELL (C) IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

[Signature]

Date 10-28-96

Construction Activity ReportPage 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/28/96	Weather: RAINING	Temperature: Low 43 High 48	

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

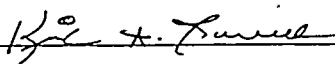
**THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/24/96 TO 10/28/96 DUE TO WEEKEND
CAU-90 (C) WELL.**

IRONWORKERS CONTINUE INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AROUND WELL (C) IN
ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 10-29-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/29/96	Weather: CLOUDY		Temperature: Low 43 High 48

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU-90 (C) WELL.

IRONWORKERS COMPLETED INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AND (3) STRANS OF SMOOTH WIRE ON TOP AROUND WELL (C). INSTALLED DROP GATE IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

[Handwritten Signature]

Date 10-30-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL ..	
Charge No: C4UB1ODE	Inspector: L. HUGHES	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 11/21/96	Weather: CLOUDY		Temperature: Low 43 High 48

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRs:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

THIS WILL BE CONSIDERED THE FINAL REPORT ON THIS PROJECT.

FINAL REPORT

THE FINAL INSPECTION AND ACCEPTANCE OF THIS PROJECT WAS ACCEPTED AND SIGNED OFF.
FINAL ACCEPTANCE FORM WILL FOLLOW, AS-BUILT DWG. WERE RELEASED TO GARY HUDAK OF PEER CO.
(INDEPENDENT ENGINEER).

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature: Laurie Hughes

Date: 11-21-96

APPENDIX H.
CONCRETE AND GROUT
TESTING REPORTS

SEP 04 1996

CONCRETE CYLINDER
COMPRESSION TESTS
AS PER ASTM C 39-94

Bechtel Nevada
MATERIALS TESTING LABORATORY
P. O. BOX 98521, M/S NTS188
LAS VEGAS, NV 89193-8521

CHARGE #: C15BC200
LOG #: N/A
DATE: 09/04/96

Requested by: L. HUGHES

User / Agency: BECHTEL

Date Molded: 08/07/96
Date Received: 08/08/96
Project: AREA 2 INJECTION WELLS
Loc of Placement: AREA 2 WELL C
Specimen Made by: K. POWELL, L. HUGHES
Mix #: 92A1-2A

Time Molded: 1520
Time Stripped: PM
Area: 2
Quantity Represented (cu ft): 13
Batch Plant Inspector: N/A
Required Strength: 3000 (psi) @ 28 Days

MATERIALS	ORIGINAL MIX DESIGN		ADJUSTED MIX	
Cement Type: II	581	lbs	577	lbs
Sand:	1424	lbs	1412	lbs
Coarse Aggregate: 3/4"	1194	lbs	1189	lbs
Water Pounds:	350.5	lbs	283.7	lbs
Admixture: AIR	1.45	oz	1.44	oz
Admixture:	N/A		N/A	
Admixture:	N/A		N/A	
Total Weight of Materials:	3551	lbs/yd	3462	lbs/yd
Unit Weight of Concrete:	N/A		N/A	lbs/ft3
Yield:	N/A		N/A	

Weather: CLEAR

Ambient Temp. (F): 108 Concrete Temp. (F): 73 Slump: 4 1/2" % Air: Unknown

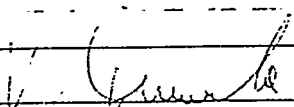
Equipment used: Dial Caliper, PTL # Y 4480 Calibration Date: 04/03/96 Calibration Date: 04/03/97
METTLER PC16, Y8803 Calibration Date: 06/03/96 Calibration Date: 06/03/97

Tested on Machine: FORNEY DOE# 158848 Calibration Date: 03/06/96 Calibration Date: 09/06/97

Average		7 Day Strength		2750 psi		Average		14 Day Strength		N/A		psi	
Average		28 Day Strength		4525 psi		Average		56 Day Strength		N/A		psi	
Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By	
					1	2	Avg						
2	2972	7	08/14/96	26.01	6.01	6.04	6.03	28.51	83500	2930	Cone	D. Herrington	
2	2973	7	08/14/96	26.08	6.01	6.02	6.02	28.42	73000	2570	Columnar	D. Herrington	
2	2974	28	09/04/96	25.96	6.03	6.00	6.02	28.42	128000	4500	Cone	T. High	
2	2975	28	09/04/96	25.86	6.02	6.00	6.01	28.37	130500	4600	Shear	T. High	
2	2976	28	09/04/96	25.98	6.00	6.01	6.01	28.32	127000	4480	Cone	T. High	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

REMARKS: WITHIN REQUIRED SPECIFICATION

CC: J. PEDALINO BECHTEL
D. JOHNSON BECHTEL
A. OLSEN BECHTEL
MIL BECHTEL FILES

Checked by: 

Date: 9-4-96

Page 1 of 1

OCT 29 1996

CONCRETE CYLINDER COMPRESSION TESTS AS PER ASTM C 39-94	Bechtel Nevada MATERIALS TESTING LABORATORY P. O. BOX 98521, M/S NTS188 LAS VEGAS, NV 89193-8521	CHARGE #: C4UB10DE LOG #: N/A DATE: 10/21/96 User / Agency: BECHTEL
Requested by: J. PEDALINO		
Date Molded: 09/23/96 Date Received: 09/24/96 Project: BIT CUTTER CAU 90-A Loc of Placement: INJECTION WELL - A Specimen Made by: J. AAMODT Mix #: HIGH STRENGTH GROUTCRETE (GYP)		Time Molded: 1136 Time Stripped: PM Area: 2 Quantity Represented (cu ft): Unknown Batch Plant Inspector: H. TUTHILL Required Strength: 3000 (psi) @ 28 Days

MATERIALS	BATCH WEIGHT	ADJUSTED MIX
Chem Comp II	0 lbs	N/A lbs
Type II	4570 lbs	N/A lbs
W - 60	170 lbs	N/A lbs
Fly Ash	2570.0 lbs	N/A lbs
A/1 Concrete Sand	10050 lbs	N/A oz
D - 19	57 lbs	N/A oz
Plastiment	1.7 gal.	N/A lbs
Water	6 Barrels	0 lbs/yd
Ice	1200 lbs	N/A lbs/ft3
Yield:	N/A	N/A

Weather: **CLEAR**
 Ambient Temp. (F): **78** Concrete Temp. (F): **59** Slump: **N/A** % Air: **N/A**
 Equipment used: **Dial Caliper, PTL # Y 4480** Calibration Date: **04/03/96** Calibration Date: **04/03/97**
 METTLER PC16, Y8803 Calibration Date: **06/03/96** Calibration Date: **06/03/97**
 Tested on Machine: **FORNEY DOE# 158848** Calibration Date: **03/06/96** Calibration Date: **09/06/97**

Average		7 Day Strength		6505 psi		Average		14 Day Strength		7135 psi		
Average		28 Day Strength		7365 psi		Average		56 Day Strength		N/A psi		
Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3269	7	09/30/96	3.16	3.00	2.99	3.00	7.05	44800	6360	Cone/Split	K. Olmstead
1	3270	7	09/30/96	3.10	2.99	2.99	2.99	7.02	45600	6490	Cone/Split	K. Olmstead
1	3271	7	09/30/96	3.11	3.00	2.99	3.00	7.05	47000	6670	Cone/Split	K. Olmstead
1	3272	14	10/07/96	3.13	2.99	2.99	2.99	7.02	47300	6740	Cone	T. High
1	3273	14	10/07/96	3.11	2.99	2.99	2.99	7.02	48800	6950	Cone	T. High
1	3274	14	10/07/96	3.14	2.99	3.01	3.00	7.07	54600	7720	Cone	T. High
1	3275	28	10/21/96	3.13	2.99	2.99	2.99	7.02	54600	7780	Cone	D. Herrington
1	3276	28	10/21/96	3.14	3.00	2.99	3.00	7.05	52700	7480	Cone	D. Herrington
1	3277	28	10/21/96	3.11	2.99	2.99	2.99	7.02	48000	6840	Cone	D. Herrington

REMARKS: WITHIN REQUIRED SPECIFICATION

REVISED CC: ONLY 10/29/96

CC: **E. MITCHELL** **BECHTEL**
 J. PEDALINO **BECHTEL**
 D. JOHNSON **BECHTEL**
 A. OLSON **BECHTEL**
 MTL BECHTEL FILES

Checked by: V. Gammie

Date: 10/21/96

Page **1** of **1**

OCT 29 1996

CONCRETE CYLINDER COMPRESSION TESTS AS PER ASTM C 39-94	Bechtel Nevada MATERIALS TESTING LABORATORY P. O. BOX 98521, M/S NTS188 LAS VEGAS, NV 89193-8521	CHARGE #: C4UB10DE LOG #: N/A DATE: 10/24/96 User / Agency: BECHTEL
Requested by: K. POWELL		
Date Molded: 09/27/96 Date Received: 09/28/96 Project: BIT CUTTER Loc of Placement: INJECTION WELL CAPS WELL "C" Specimen Made by: D. VINCENT Mix #: 92A1-2A	Time Molded: Unknown Time Stripped: AM Area: 2 Quantity Represented (cu ft): 17 Batch Plant Inspector: N/A Required Strength: 3000 (psi) @ 28 Days	

MATERIALS	ORIGINAL MIX DESIGN	ADJUSTED MIX	
Cement Type: II	581 lbs	577	lbs
Sand:	1424 lbs	1419	lbs
Coarse Aggregate: 3/4"	1194 lbs	1194	lbs
Water Pounds:	350.5 lbs	208.6	lbs
Admixture: AIR	1.45 oz	1.50	oz
Admixture: ICE	N/A	N/A	lbs
Admixture: Water Reducer 400N	N/A	N/A	oz
Total Weight of Materials:	3551 lbs/yd	3398	lbs/yd
Unit Weight of Concrete:	N/A	N/A	lbs/ft3
Yield:	N/A	N/A	

Weather: CLEAR WARM

Ambient Temp. (F): 65 **Concrete Temp. (F):** 74 **Slump:** 3" **% Air:** 3.25

Equipment used: Dial Caliper, PTL # Y 4480 Calibration Date: 04/03/96 Calibration Date: 04/03/97
 METTLER PC16, Y8803 Calibration Date: 06/03/96 Calibration Date: 06/03/97

Tested on Machine: FORNEY DOE# 158848 Calibration Date: 03/06/96 Calibration Date: 09/06/97

Average 6 Day Strength	2760 psi	Average 14 Day Strength	N/A	psi
Average 27 Day Strength	4130 psi	Average 56 Day Strength	N/A	psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3294	6	10/03/96	25.63	6.00	6.00	6.00	28.27	78500	2780	Cone	K. Olmstead
1	3295	6	10/03/96	25.69	6.02	5.99	6.01	28.32	77500	2740	Cone	K. Olmstead
1	3296	27	10/24/96	25.60	6.02	6.01	6.02	28.42	115500	4060	Shear	D. Herrington
1	3297	27	10/24/96	25.68	6.03	6.01	6.02	28.46	118500	4160	Shear	D. Herrington
1	3298	27	10/24/96	25.61	6.02	6.01	6.02	28.42	118500	4170	Cone/Shear	D. Herrington
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

REMARKS: WITHIN REQUIRED SPECIFICATION

REVISED CC: ONLY 10/29/96

Checked by: *[Signature]* Date: 10/24/96

CC: E. MITCHELL BECHTEL
 J. PEDALINO BECHTEL
 D. JOHNSON BECHTEL
 A. OLSON BECHTEL
 MTL BECHTEL FILES

001 2 3 1996

CONCRETE CYLINDER.
COMPRESSION TESTS
AS PER ASTM C 39-94

Bechtel Nevada
MATERIALS TESTING LABORATORY
P. O. BOX 98521, M/S NTS188
LAS VEGAS, NV 89193-8521

CHARGE #: C4UB10DE
LOG #: N/A
DATE: 10/24/96

Requested by: J. PEDALINO

User / Agency: BECHTEL

Date Molded: 09/26/96
Date Received: 09/27/96
Project: BIT CUTTER CAU 90-C
Loc of Placement: INJECTION WELL - C
Specimen Made by: J. AAMODT
Mix #: DIPOLE HAIL HIGH STRENGTH GROUTCRETE (GYP)

Time Molded: 1800
Time Stripped: PM
Area: 2
Quantity Represented (cu yd): 6
Batch Plant Inspector: D. JOHNSON
Required Strength: 3000 (psi) @ 28 Days

MATERIALS	BATCH WEIGHT	ADJUSTED MIX
Chem Comp II	0 lbs	N/A lbs
Type II	4570 lbs	N/A lbs
W - 60	170 lbs	N/A lbs
Fly Ash	2570 lbs	N/A lbs
A/1 Concrete Sand	10050 lbs	N/A lbs
D - 19	57 lbs	N/A lbs
Plastiment	1.7 gal.	N/A gal.
Water	190 gal.	N/A gal.
Ice	1200 lbs	N/A lbs
Yield:	N/A	N/A

Weather: CLEAR

Ambient Temp. (F): 75 Concrete Temp. (F): 50 Slump: N/A % Air: N/A

Equipment used: Dial Caliper, PTL # Y 4480 Calibration Date: 04/03/96 Calibration Date: 04/03/97
METTLER PC16, Y8803 Calibration Date: 06/03/96 Calibration Date: 06/03/97

Tested on Machine: FORNEY DOE# 158848 Calibration Date: 03/06/96 Calibration Date: 09/06/97

Average 7 Day Strength 8360 psi Average 14 Day Strength 8330 psi
Average 28 Day Strength 8825 psi Average 56 Day Strength N/A psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3283	7	10/03/96	3.18	2.97	3.00	2.99	7.00	56000	8000	Cone/Split	K. Olmstead
1	3284	7	10/03/96	3.17	2.98	2.99	2.99	7.00	61000	8720	Cone/Split	K. Olmstead
1	3285	14	10/10/96	3.17	3.00	3.00	3.00	7.07	57800	8180	Cone/Split	T. High
1	3286	14	10/10/96	3.18	2.99	3.01	3.00	7.07	56800	8040	Cone/Split	T. High
1	3287	14	10/10/96	3.17	2.99	2.99	2.99	7.02	61600	8770	Cone/Split	T. High
1	3288	28	10/24/96	3.16	3.00	2.99	3.00	7.05	61000	8660	Cone	D. Herrington
1	3289	28	10/24/96	3.17	3.00	3.00	3.00	7.07	64200	9080	Cone	D. Herrington
1	3290	28	10/24/96	3.17	3.00	3.00	3.00	7.07	61800	8740	Shear	D. Herrington
1	3291	HOLD	09/26/96	3.17								

REVISED CC: ONLY 10/29/96

CC: E. MITCHELL BECHTEL

REMARKS: WITHIN REQUIRED SPECIFICATION (3291 will be held for 56 days)

J. PEDALINO BECHTEL

W.E.S DESIGN CYLINDERS CURED 140 DEGREES FAHRENHEIT +/- 5 DEGREES AT 100%

D. JOHNSON BECHTEL

HUMIDITY FOR SIX DAYS THEN DEMOLDED AND PUT IN PLASTIC BAGS AND STORED

A. OLSON BECHTEL

IN A DRY PLACE AT ABOUT 75 DEGREES FAHRENHEIT UNTIL BREAK DATES.

MTL BECHTEL FILES

Checked by: *[Signature]*

Date: 10/24/96

Page 1 of 1

OCT 29 1996

CONCRETE CYLINDER COMPRESSION TESTS AS PER ASTM C 39-94	Bechtel Nevada MATERIALS TESTING LABORATORY P. O. BOX 98521, M/S NTS188 LAS VEGAS, NV 89193-8521	CHARGE #: C4UB10DE LOG #: N/A DATE: 10/28/96 User / Agency: BECHTEL
Requested by: J. PEDALINO		
Date Molded: 09/24/96 Date Received: 09/25/96 Project: BIT CUTTER CAU 90 Loc of Placement: INJECTION WELLS Specimen Made by: K. POWELL Mix #: 92A1-2A	Time Molded: 1430 Time Stripped: PM Area: 2 Quantity Represented (cu ft): 4.5 Batch Plant Inspector: N/A Required Strength: 3000 (psi) @ 28 Days	

MATERIALS	ORIGINAL MIX DESIGN	ADJUSTED MIX
Cement Type: II	581 lbs	576 lbs
Sand:	1424 lbs	1422 lbs
Coarse Aggregate: 3/4"	1194 lbs	1178 lbs
Water Pounds:	350.5 lbs	207.7 lbs
Admixture: AIR	1.45 oz	1.33 oz
Admixture: ICE	N/A	N/A lbs
Admixture: Water Reducer 400N	N/A	N/A oz
Total Weight of Materials:	3551 lbs/yd	3383 lbs/yd
Unit Weight of Concrete:	N/A	N/A lbs/ft3
Yield:	N/A	N/A

Weather: CLEAR	Ambient Temp. (F): 86	Concrete Temp. (F): 76	Slump: 4 1/2"	% Air: 4
Equipment used: Dial Caliper, PTL # Y 4480	METTLER PC16, Y8803	FORNEY DOE# 158848	Calibration Date: 04/03/96	Calibration Date: 04/03/97
			Calibration Date: 06/03/96	Calibration Date: 06/03/97
			Calibration Date: 03/06/96	Calibration Date: 09/06/97

Average	7 Day Strength	3145 psi	Average	14 Day Strength	N/A
Average	28 Day Strength	4135 psi	Average	56 Day Strength	N/A
					psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3278	7	10/01/96	25.97	6.04	5.98	6.01	28.37	87000	3070	Cone	T. High
1	3279	7	10/01/96	25.96	6.02	6.04	6.03	28.56	92000	3220	Cone	T. High
1	3280	28	10/22/96	26.00	6.02	6.03	6.03	28.51	119500	4190	Cone	D. Herrington
1	3281	28	10/22/96	26.02	6.01	6.01	6.01	28.37	125000	4410	Cone	D. Herrington
1	3282	28	10/22/96	25.96	6.02	6.01	6.02	28.42	108000	3800	Columnar	D. Herrington
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

REMARKS: WITHIN REQUIRED SPECIFICATION	CC: E. MITCHELL BECHTEL J. PEDALINO BECHTEL D. JOHNSON BECHTEL A. OLSON BECHTEL MTL BECHTEL FILES
---	--

Revised by: D. JOHNSON 10/29/96 REQUIRED STRENGTH REVISED 10/28/96 BY D. JOHNSON	Checked by: <i>[Signature]</i> Date: 10/23/96
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Page 1 of 1

APPENDIX I
POST-CLOSURE INSPECTION CHECKLIST

AREA 2, BITCUTTER & POSTSHOT INJECTION WELLS, POST-CLOSURE INSPECTION CHECKLIST

Date of Last Inspection:

Reason for Last Inspection:

Responsible Agency:

Project Manager:

Inspection Date:

Inspector (name, title, organization):

Assistant Inspector (name, title, organization):

A. GENERAL INSTRUCTIONS

1. All checklist items must be completed and detailed comments made to document the results of the site inspection. The completed checklist is part of the field record of the inspection. Additional pages should be used as necessary to ensure that a complete record is made. Attach the additional pages and number all pages upon completion of the inspection.
3. Any checklist line item marked by an inspector in a SHADED BOX, must be fully explained or an appropriate reference to previous reports provided. The purpose of this requirement is to provide a written explanation of inspector observations and the inspector's rationale for conclusions and recommendations. Explanations are to be placed on additional attachments and cross-referenced appropriately. Explanations, in addition to narrative, will take the form of sketches, measurements, annotated site maps.
4. The site inspection is a walking inspection of the entire site including the perimeter and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
5. A standard set of color 35mm photographs is required. In addition, all anomalous features or new features (such as changes in adjacent area land use) are to be photographed. A photo log entry will be made for each photograph taken.
6. This unit will be inspected biannually with formal reporting to the Nevada Division of Environmental Protection to be done annually. The annual report will include an executive summary, this inspection checklist with field notes and photo log attached, and recommendations and conclusions.

B. PREPARATION (To be completed prior to site visit)

YES

NO

EXPLANATION

1. Site as-built plans and site base map reviewed
2. Previous inspection reports reviewed
 - a. Were anomalies or trends detected on previous inspections?
 - b. Was maintenance performed?
3. Site maintenance and repair records reviewed
 - a. Has site repair resulted in a change from as-built conditions?
 - b. Are revised as-builts available that reflect repair changes?

C. SITE INSPECTION (To be completed during inspection)

YES

NO

EXPLANATION

1. Adjacent off-site features within watershed areas
 - a. Have there been any changes in use of adjacent area?
 - b. Are there any new roads or trails?
 - c. Has there been a change in the position of nearby washes?
 - d. Has there been lateral excursion or erosion/deposition of nearby washes?
 - e. Are there new drainage channels?
 - f. Change in surrounding vegetation?
2. Security fence, signs
 - a. Displacement of fences, site markers, boundary markers, or other structures?
 - b. Have any signs been damaged or removed?
(Number of signs replaced: _____)
 - c. Were gates locked?

AREA 2, BITCUTTER & POSTSHOT INJECTION WELLS, POST-CLOSURE INSPECTION CHECKLIST

3. Waste Unit covers

- a. *Is there evidence of settling?*
- b. *Is there cracking?*
- c. *Is there evidence of erosion around the cap (wind or water)?*
- d. *Is there evidence of animal burrowing?*
- e. *Have the site markers been disturbed by man or natural processes?*
- f. *Do natural processes threaten to integrity of any cover or site marker?*
- g. *Other?*

[illegible]

4. Photo Documentation

- c. Number of photos exposed ()

--	--

D. FIELD CONCLUSIONS

- 1. Is there an imminent hazard to the integrity of the unit?**
(Immediate report required)

--	--	--

Person/Agency to whom report made:

2. Are more frequent inspections required?
3. Are existing maintenance/repair actions satisfactory?
4. Is other maintenance/repair necessary?

5. Rationale for field conclusions:

[illegible]

E. CERTIFICATION

I have conducted an inspection of the Area 2 Bitcutter & Postshot Shop Containment Injection Wells, Corrective Action Unit 90, at the NTS in accordance with the procedures of the Post-Closure Permit (including the Post-Closure Plan) as recorded on this checklist, attached sheets, field notes, photo logs, and photographs.

Chief Inspector's Signature:

Printed Name:

FILE

Unit.

DISTRIBUTION LIST

DISTRIBUTION LIST

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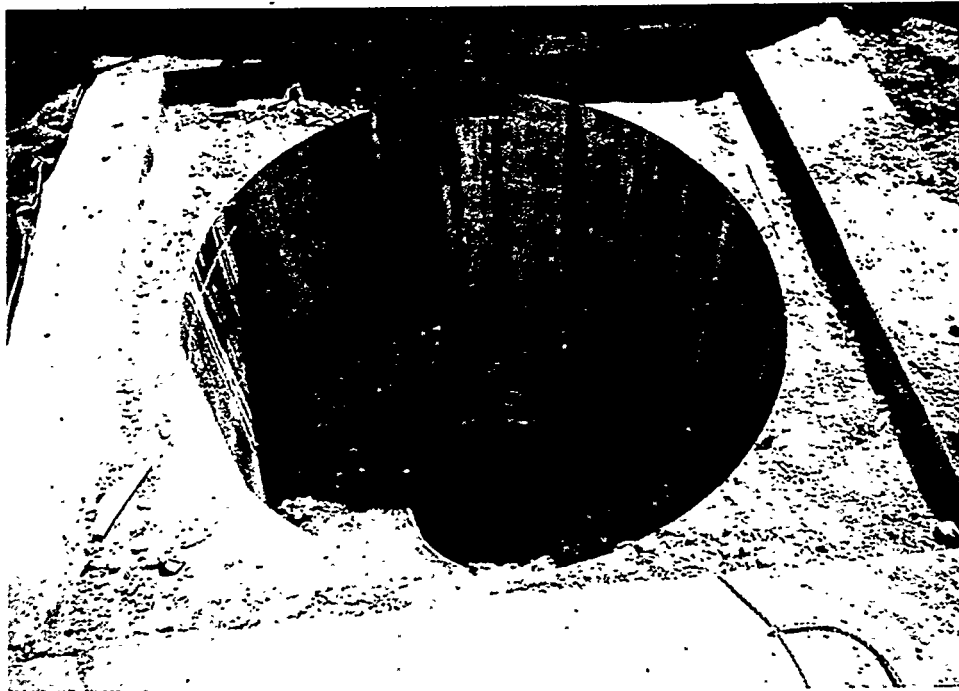
2

Bechtel Nevada
P. O. Box 98521
Las Vegas, NV 89193-8521

J. R. Kannard
S. J. Nacht
A. L. Olson
M. D. Shotton

1
1
1
1

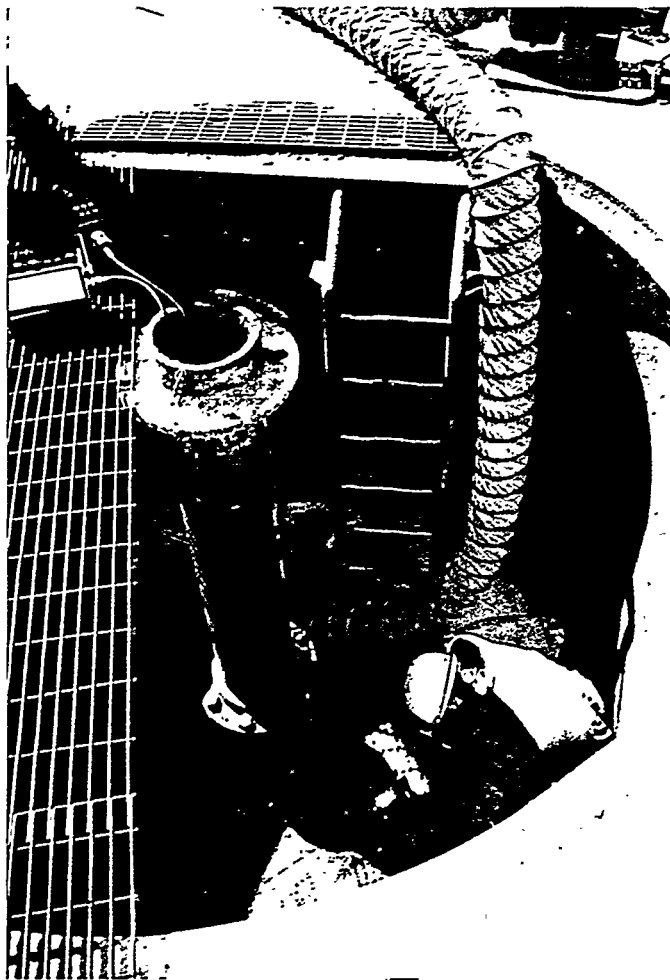
APPENDIX F
CLOSURE ACTIVITY PHOTOGRAPHS



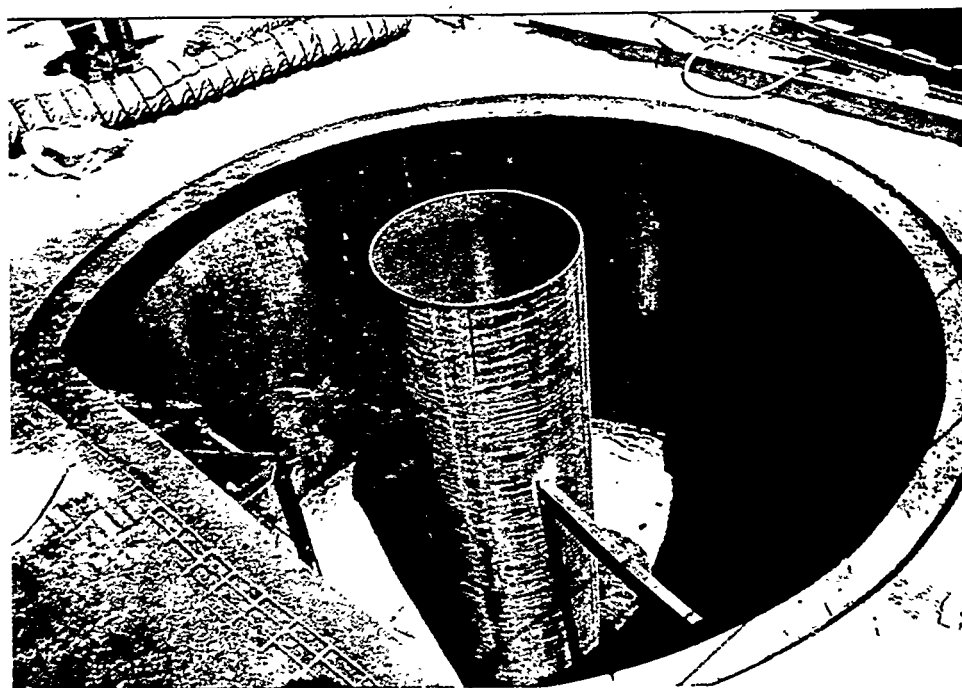
Bitcutter Inside Injection Well
prior to source removal
August 6, 1996



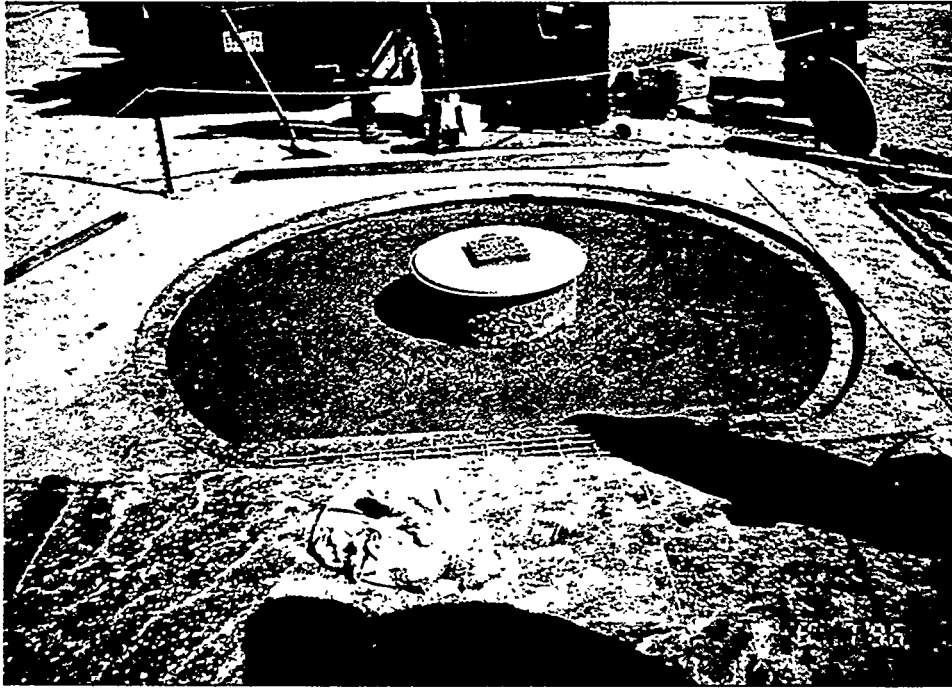
Bitcutter Inside Injection Well
source removal
August 6, 1996



Postshot Containment Shop
Injection Well
removal of surface casing
August 6, 1996



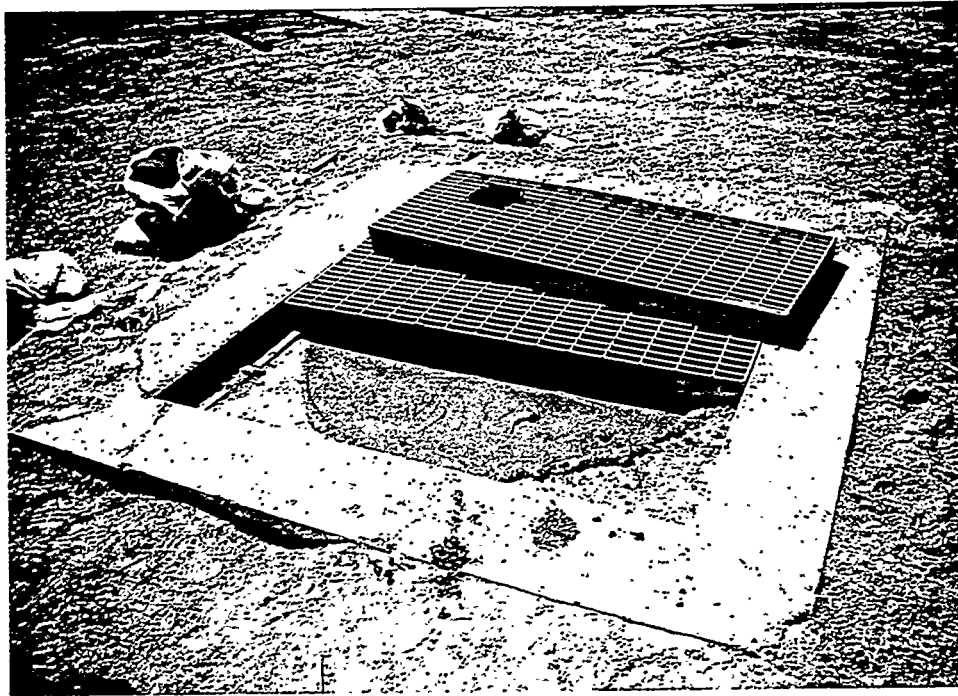
Postshot Containment Shop
Injection Well
new surface casing
August 7, 1996



Postshot Containment Shop
Injection Well
sump backfill complete
August 7, 1996



Postshot Containment Shop
Injection Well
source material removal
August 8, 1996



Bitcutter Inside Injection Well
grout plug complete
September 23, 1996



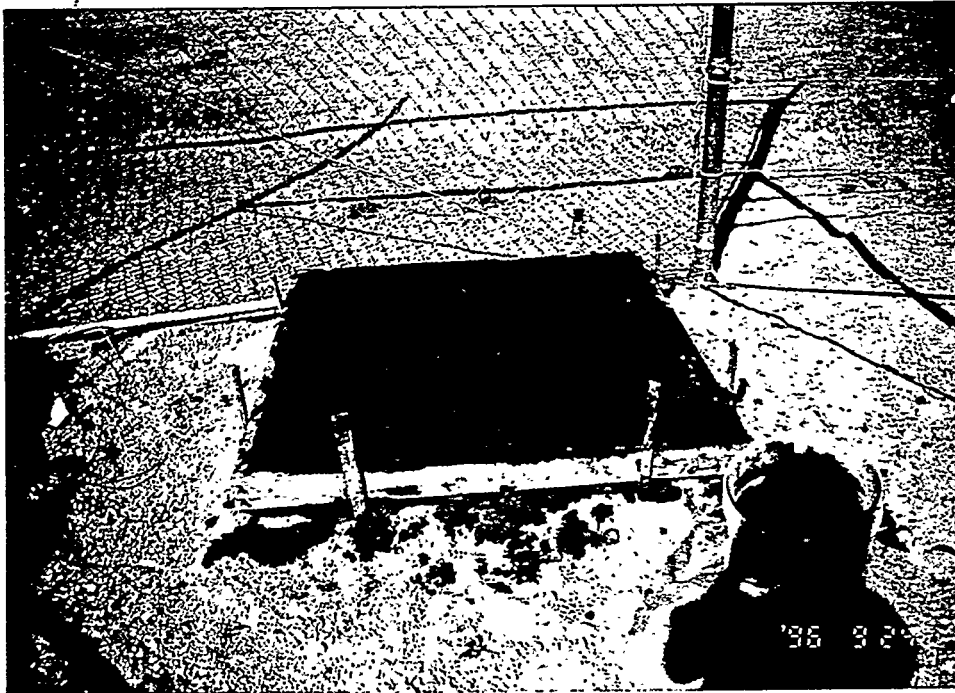
Bitcutter Inside Injection Well
grout cylinders for compressive strength tests
September 23, 1996



Bitcutter Inside Injection Well
concrete cover installation
September 24, 1996



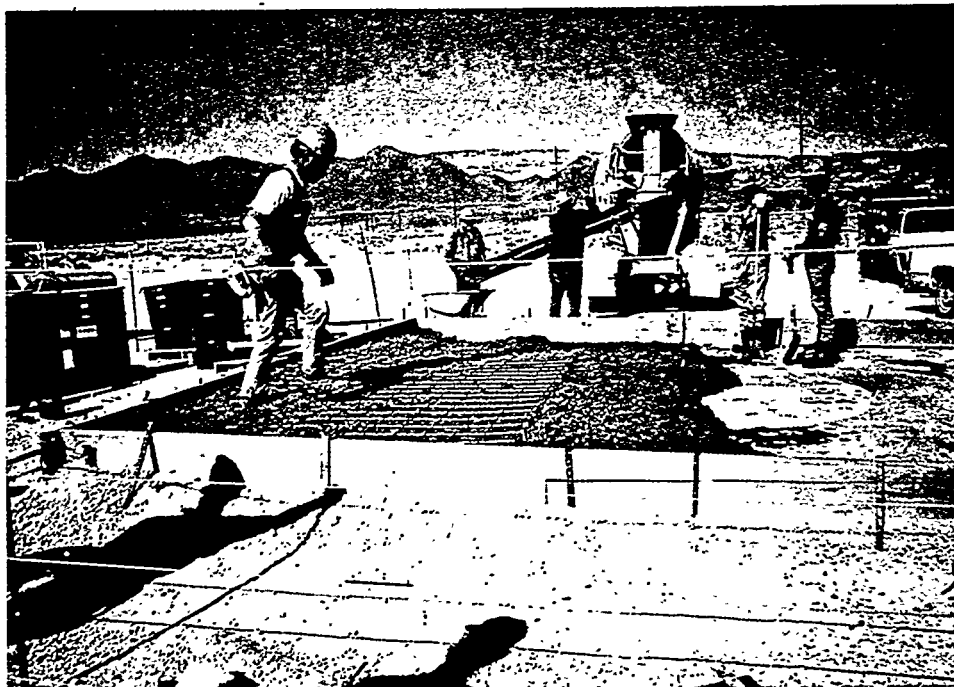
Bitcutter Inside Injection Well
concrete cylinders for compressive strength tests
September 24, 1996



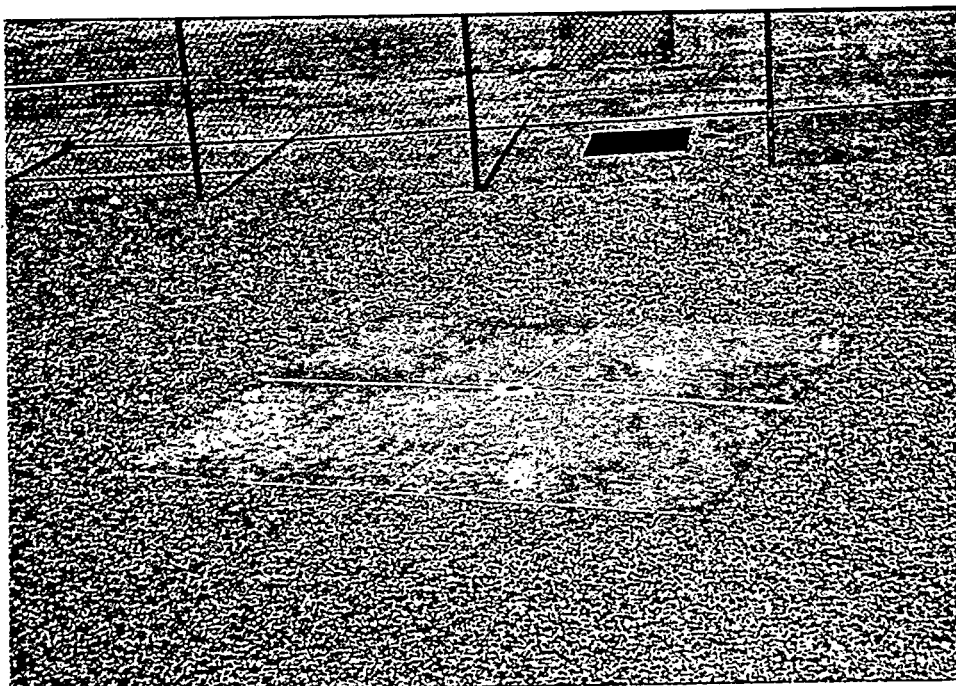
Bitcutter Outside Injection Well
concrete cover installation
September 24, 1996



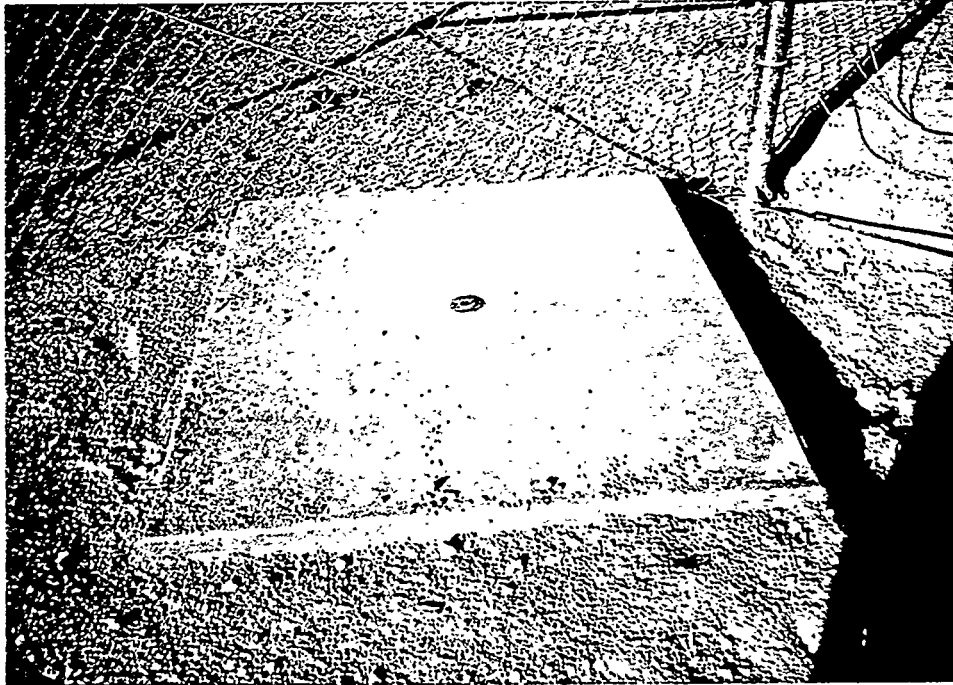
Postshot Containment Shop Injection Well
placement of grout plug
September 26, 1996



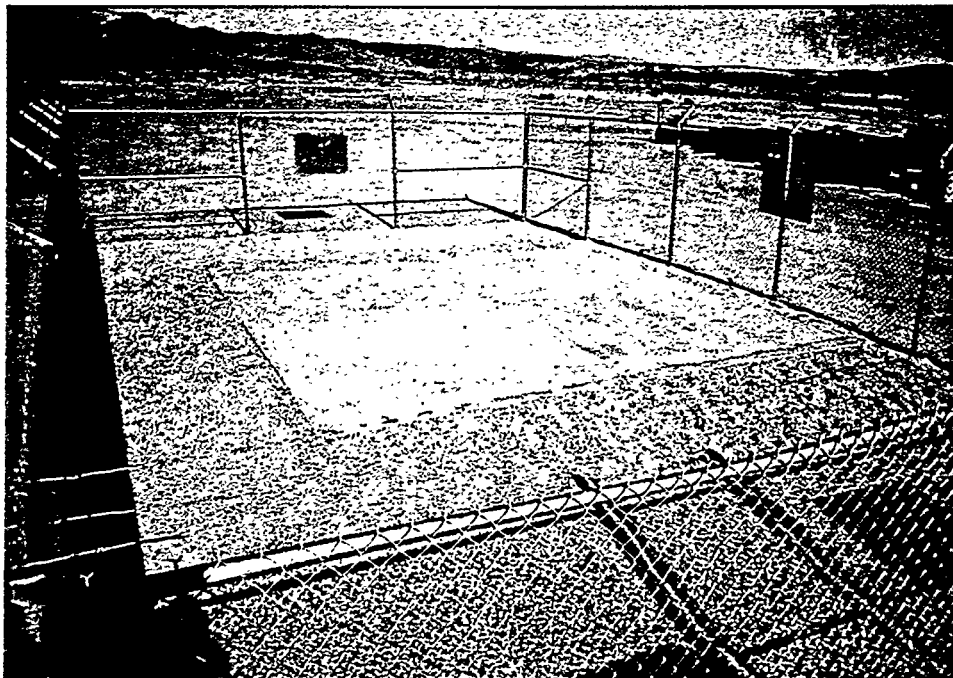
Postshot Containment Shop Injection Well
installation of concrete cover
September 27, 1996



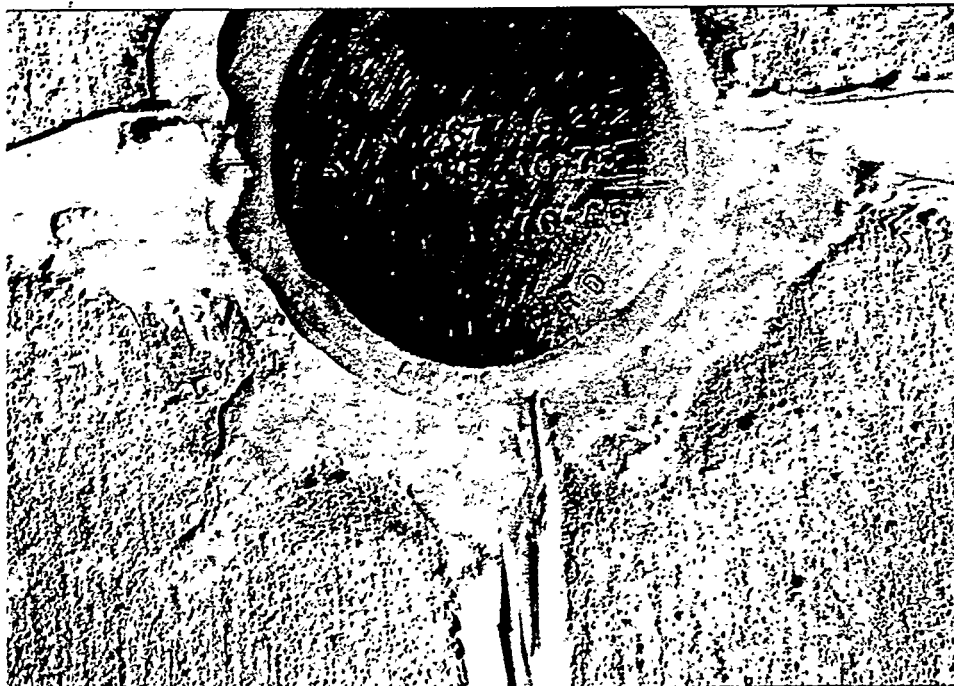
Bitcutter Inside Injection Well
completed concrete cover
November 7, 1996



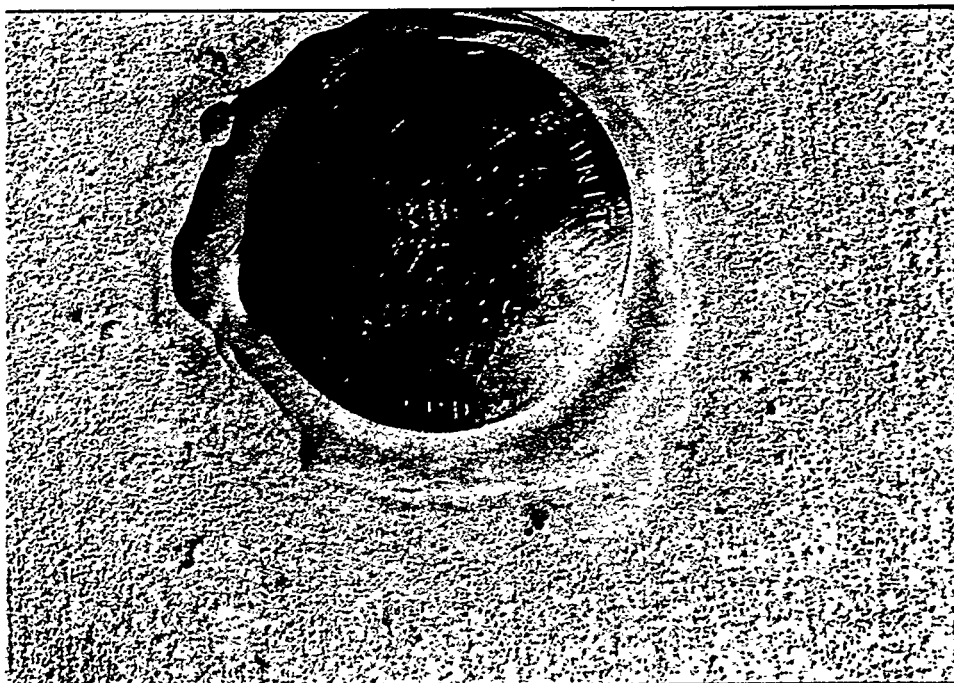
Bitcutter Outside Injection Well
completed concrete cover
October 1, 1996



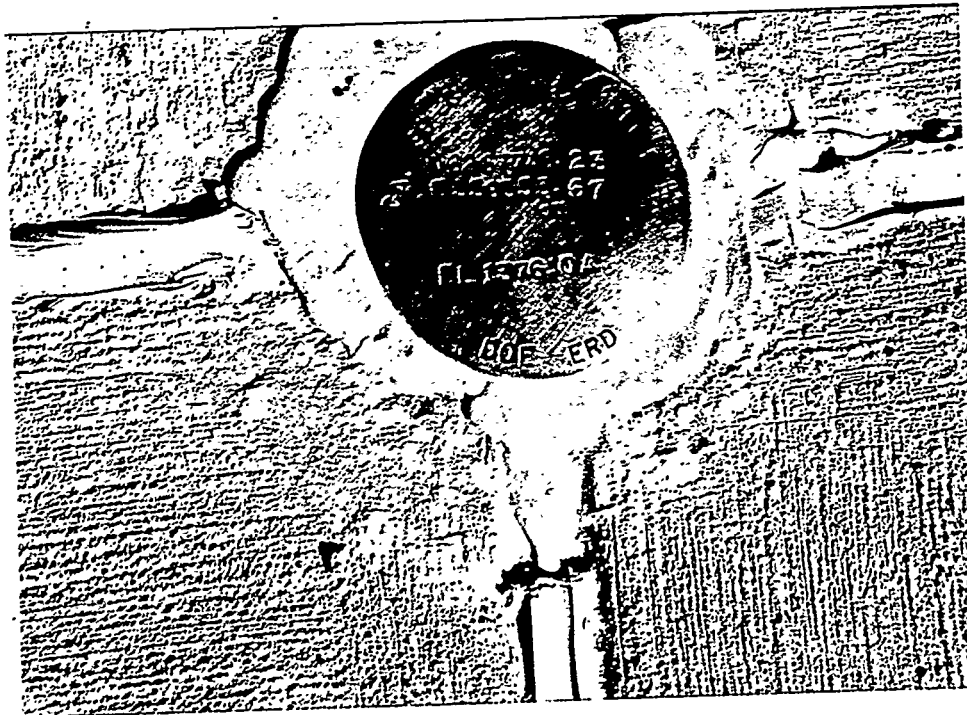
Postshot Containment Shop Injection Well
completed concrete cover
November 7, 1996



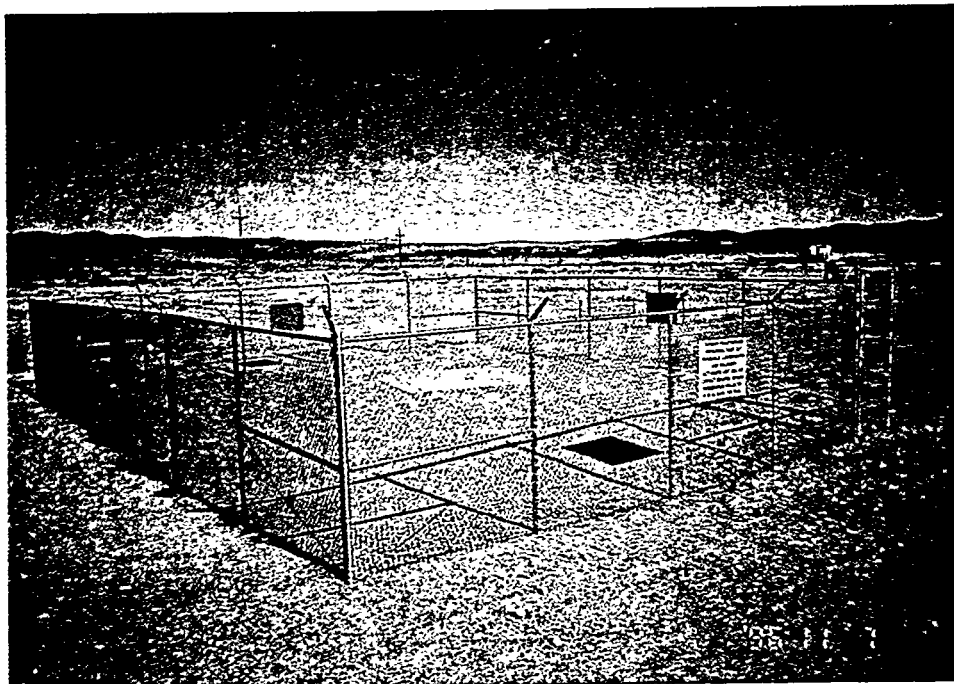
Bitcutter Inside Injection Well
CAU 90-A brass survey marker
October 21, 1996



Bitcutter Outside Injection Well
CAU 90-B brass survey marker
October 21, 1996



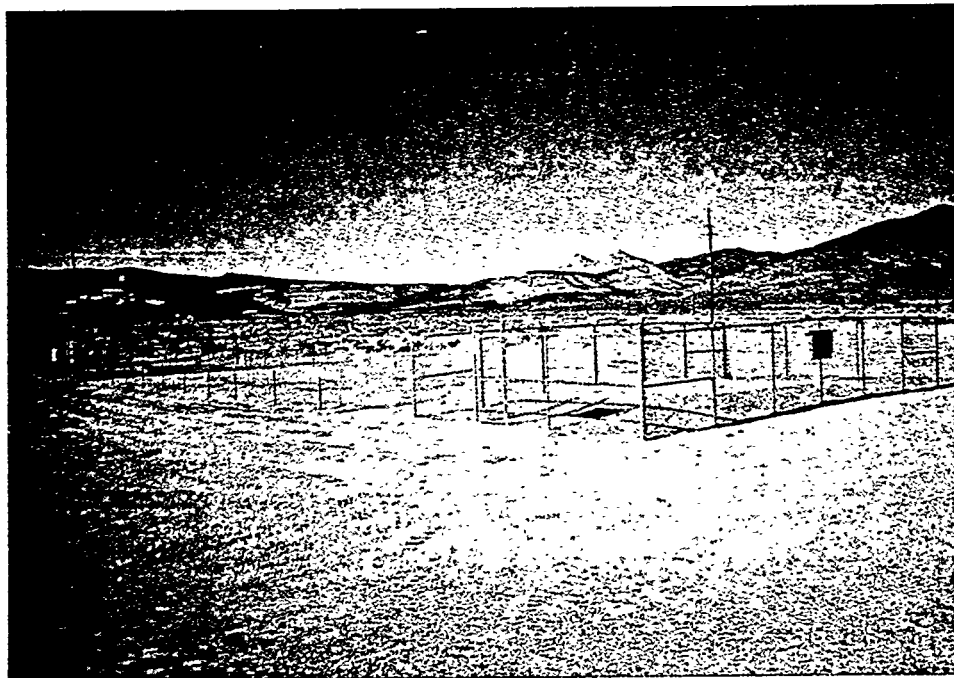
Postshot Containment Shop Injection Well
CAU 90-C brass survey marker
October 21, 1996



Bitcutter Inside Injection Well
chainlink fence and signs
November 7, 1996



Postshot Containment Shop Injection Well
chainlink fence and signs
November 7, 1996



Corrective Action Unit 90
November 7, 1996

APPENDIX G

CONSTRUCTION ACTIVITY REPORTS

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/05/96	Weather: CLEAR		Temperature: Low 52 High 93

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes No

THIS WILL BE CONSIDERED THE REPORT ON THIS PROJECT.

CAU 90-C WELL

WELDER BEGAN REMOVING THE EXISTING 10" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3.

Inspector's Signature

K. Powell

Date 8-6-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>FOR P.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/06/96	Weather: CLEAR		Temperature: Low 56 High 96

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
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CAU 90-C WELL

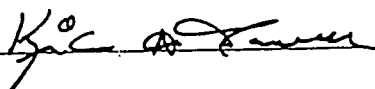
WELDER COMPLETED REMOVING THE EXISTING 10" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3.

NOTE: DRILLERS AND LABORS REMOVED APPROX. 135 GALLONS OF SLUDGE FROM WELL A.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number. _____

Inspector's Signature

Date 8-8-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>FOR D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/07/96	Weather: CLEAR	Temperature: Low 56 High 108	

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 2	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
-------------	--	-----	----

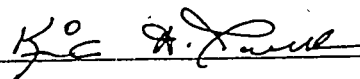
CAU 90-C WELL

WELDER COMPLETED INSTALLING THE 24" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3
LABORS PLACED 13 CUBIC YARDS OF CONCRETE AROUND THE 24" PIPE SPOOL INSIDE OF CAU 90-C IN
ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number

Inspector's Signature

Date 8-7-96

CONCRETE PRE-PLACEMENT

8

CONTRACTOR: BECHTEL P.A./I.P. NUMBER(S): N/A
 PROJECT: AREA 2 INJECTION WELLS AREA: 2
 WORK FEATURE: STEMMING
 SPECIFIC LOCATION: Well C
 REQUIRED STRENGTH: 3,000 PSI AT: 3,000, 28 DAYS
 CU. YARDS ESTIMATED: 13 CU. YARDS PLACED: 13
 SPEC. & DWG. NOS./OTHER INSPECTION CRITERIA: JS-002-133-C2

ITEM	INITIALS	DATE
FOUNDATION/SUBGRADE	<i>JH</i>	8-7-96
FORMWORK	N/A	
REINFORCEMENT STEEL	N/A	
EMBEDDED ITEMS/WATERSTOP	<i>JH</i>	8-7-96
JOINTS/ADJACENT CONCRETE	N/A	
PLUMBING	N/A	
ELECTRICAL	N/A	
MECHANICAL	<i>JH</i>	8-9-96
LINE, GRADE & ELEVATION	N/A	
CLEAN-UP	<i>JH</i>	8-7-96
PLACING/CONSOLIDATION EQUIPMENT	N/A	

ABOVE ITEMS ARE SATISFACTORY

YES [☒]

NO [☐]

REMARKS:

INSPECTOR:

Louise Hughes, Eric A. Farnell

DATE: 8-7-96

CONCRETE PLACEMENT

CONTRACTOR: BECHTEL P.A./W.O. NUMBER(S): N/A
 PROJECT: AREA 2 INJECTION WELLS AREA: 2
 LOCATION: AREA 2
 DATE: 8-7-96 WEATHER: CLEAR (HOT)
 M & TE USED: N/A CALIBRATION DUE DATE: N/A
 NCR/CD CONDITION: N/A MIX TYPE: 92A1-2A
 START TIME: 14:37 COMPLETION TIME: 15:30

ITEM	INITIALS	DATE
PREPLACEMENT INSPECTION COMPLETED	<i>X/H</i>	8-7-96
VERIFIED BATCH TICKET INFORMATION	<i>X/H</i>	8-7-96
TEST FREQUENCY/RESULTS	<i>X/H</i>	8-7-96
TRANSPORTING/DISCHARGING CONCRETE	<i>X/H</i>	8-7-96
SURFACES RECEIVING CONCRETE	<i>X/H</i>	8-7-96
CONCRETE CONVEYANCE	<i>X/H</i>	8-7-96
CONCRETE DEPOSITION	<i>X/H</i>	8-7-96
PLACING METHODS	<i>X/H</i>	8-7-96
CONSOLIDATION OF CONCRETE	<i>X/H</i>	8-7-96
SHEATHING CLEARANCE INTEGRITY	<i>X/H</i>	8-7-96
PLACING/CONSOLIDATION EQUIPMENT	<i>N/A</i>	

ABOVE ITEMS ARE SATISFACTORY

YES [☒]

NO [☐]

REMARKS:

INSPECTOR:

David Hughes & Joe A. Linsen

DATE:

8-7-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/08/96	Weather: CLEAR	Temperature: Low 56 High 108	

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 2	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
-------------	--	-----	----

CAU 90-C WELL

LABORS BEGAN CLEANING OUT THE SLUDGE FROM THE BOTTOM OF CAU-90-C WELL.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 8-8-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/13/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 2	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 8/9/96 TO 8/13/96

CAU 90-C WELL

OPERATORS BEGAN DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND AREA IN ACCORDANCE WITH
DWG.JS-002-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number:

 Inspector's Signature K.C. A. Powell

 Date 8-15-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/14/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90-C WELL

OPERATORS CONTINUE DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND AREA IN ACCORDANCE WITH
DWG.JS-002-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number

Inspector's Signature K. A. Powell

Date 8-15-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/15/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90- (A) AND (C) WELL

OPERATORS COMPLETED DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND WELL (A) AND WELL(C) ,
LABORERS AND IRON WORKERS SET POSTS IN CONCRETE IN ACCORDANCE WITH DWG.JS-002-133-C2 .

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number:

Inspector's Signature [Signature]

Date 8-19-96

Construction Activity ReportPage 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/19/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

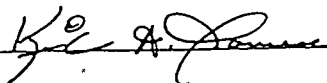
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TMRS:	SURV:	LABR: 3	LMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

THERE WAS NO CONSTRUCTION ACTIVITY FROM 8-15-96 TO 8-19-96 DUE TO WEEKEND**AU 90- (A) AND (C) WELL****IRON WORKERS CONTINUE ERECTING FENCE IN ACCORDANCE WITH DWG.JS-002-133-C2.****NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED**

Index Number

Inspector's Signature

Date 8-20-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/20/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

CAU 90- (A) AND (C) WELL

IRON WORKERS BEGAN INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

LABORS TAGGED "C" WELL DEPTH AT 47' IN ACCORDANCE WITH INSPECTION TESTING RESPONSIBILITY MATRIX DATED 7-31-96.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: ..

Inspector's Signature 150 [Signature]

Date 8-21-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON <i>[initials]</i>	P.A./I.P. No's: N/A
Date: 08/21/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

CAU 90- (A) AND (C) WELL

IRON WORKERS CONTINUE INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/22/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90- (A) AND (C) WELL

IRON WORKERS CONTINUE INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number. _____

Inspector's Signature [Signature]

Date 8-24-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON <i>[initials]</i>	P.A./I.P. No's: N/A
Date: 09/12/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 3	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY ON THIS PROJECT REQUIRING INSPECTION FROM 8/22/96 TO 9/12/96.

CAU 90- (C) WELL

DRILLERS AND LABORS TAGGED WELL "C" AT 44 FEET, THEN BEGAN DRILLING TO 49 FEET IN ACCORDANCE WITH DWG.JS-002-133-C2.

NOTE: ONE CORE SAMPLE WAS TAKEN BETWEEN 49 AND 51 FEET, SAMPLE WAS BLACK SLUDGE. ONE SAMPLE WAS TAKEN BETWEEN 51 AND 53 FEET, SAMPLE WAS BLACK SLUDGE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index number. —

Inspector's Signature

*[Signature: K. Powell]*Date 9-16-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/16/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 3	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY FROM 9/13/96 TO 9/16/96 DUE TO WEEKEND.

CAU 90- (C) WELL

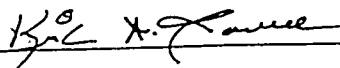
DRILLERS TOOK TWO CORE SAMPLE FROM WELL (C), IN ACCORDANCE WITH DWG.JS-002-133-C2.

NOTE: ONE CORE SAMPLE WAS TAKEN BETWEEN 53 AND 55 FEET, SAMPLE WAS BLACK GRANULATED SLUDGE.
DRILLERS DRILLED TO 55.5 FEET AND A SAMPLE WAS TAKEN FROM THE DRILL BIT, SAMPLE WAS SAND..

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: ---

Inspector's Signature

Date 9-19-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/23/96	Weather: CLEAR		Temperature: Low 56 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 9/17/96 TO 9/23/96.

CAU 90- (A) WELL

TAGGED WELL (A) AT 49.5 FEET AND FILLED WITH DIPOLE HAIL HIGH STRENGTH GROUTCRETE TO TOP OF EXISTING CONCRETE SLAB, SIX (6) CUBIC YARDS WAS PLACED IN ACCORDANCE WITH DWG. JS-002-133-C2. AND DCN # NLV-96-200AB.

NOTE: BECHTEL MATERIAL TEST LAB SAMPLED THE GROUT MATERIAL, TEST RESULTS TO FOLLOW.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number _____

Inspector's Signature

[Signature]

Date 9-24-96

CONCRETE/GROUT PLACEMENT RECORD

Bechtel Nevada

INSPECTOR K. Powell

LOCATION AREA 2 CAU 90-A

DATE 9-23-96

STRUCTURE Bitcutter Injection well-A

WEATHER Clear

EST. VOL. 6 CU. YDS.

AMB. TEMP. 78°

ACT. VOL. 6 CU. YDS:

REQ. STR. 3,000 @ 28 days

DESIGN NO. DH54 ~~3~~
DIPLOME HAIL High STRENGTH GROUT CRCTC. (GYP)

ID NUMBER _____

DESIGN NO. DIPLOE HAIL High STRENGTH GROUTCRETE (GYP)

UNLESS OTHERWISE NOTED ALL ITEMS VERIFIED ON THIS DOCUMENT CONFORM TO APPROVED CRITERIA

INSPECTOR'S INITIALS _____

INSPECTOR'S INITIALS.

[illegible]

REMARKS

CERTIFICATION OF DRY MATERIALS BATCH WEIGHT

HOLE: BIT CUTTER

DATE: 9/23/96

MIXTURE DESIGN: HIGH STRENGTH GROUTCRETE (GYP) TRUCK NO.: 81701

BATCH SIZE (FT³): _____ 3 T E A R

CHEM COMP	<u> / </u>	POUNDS
TYPE II	<u>4570</u>	POUNDS
W-60	<u>170</u>	POUNDS
FLY ASH	<u>2570</u>	POUNDS
A1 CONCRETE SAND	<u>10050</u>	POUNDS
D-19	<u>57</u>	POUNDS
PLASTIMENT	<u>1.7 GAL</u>	POUNDS

MIX TIME	<u>1120</u>	HOUR / DATE
WEIGHT/GAL	<u>16.5</u>	POUNDS
GROUT TEMP	<u>54</u>	°F
WATER	<u>5.95</u>	BARRELS
ICE	<u>1200</u>	POUNDS

H. R. Tuttle
VERIFIED BY



Reynolds Electrical & Engineering Co., Inc.

CEMENT MATERIAL WEIGHT SHEET

CONTROL NO. _____

DATE 7-18-90

LOCATION A-12 BP

USER _____

UNIT NO. 53282

DRIVER _____

FRONT TIER

SLURRY TYPE DHHS9

PRODUCT #1

DHHS9

(3)

162

WEIGHT 7367

REAR TIER

SLURRY TYPE DHHS9

#3

PRODUCT #1

SILO NO. 19

TYPE Fly Ash

WEIGHT 2570

PRODUCT #2

SILO NO. 5

TYPE Type II

WEIGHT 4570

PRODUCT #3

SILO NO. 22

TYPE L-60

WEIGHT 170

PRODUCT #4

SILO NO. _____

TYPE _____

WEIGHT _____

PRODUCT #5

SILO NO. _____

TYPE _____

WEIGHT _____

PRODUCT #5

SILO NO. _____

TYPE _____

WEIGHT _____

ADDITIVE #1

TYPE _____

WEIGHT _____

ADDITIVE #2

TYPE D-19

WEIGHT 57

ADDITIVE #3

TYPE _____

WEIGHT _____

ADDITIVE #4

TYPE _____

WEIGHT _____

TOTALS

CU. FT. SLURRY 162

WEIGHT 7367

TIME STARTED _____

TIME ENDED _____

BATCH NO'S. 304

BULK PLANT OPERATOR [Signature]

INSPECTOR _____

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/24/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S): 1	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU-90- (A) (B) WELLS.

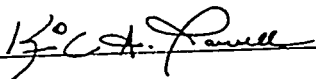
THIS INSPECTOR WITNESSED THE PLACEMENT OF 92-A1-2A CONCRETE FOR CAPING THE WELLS, 4.5 CUBIC YARDS WAS PLACED IN ACCORDANCE TO DWG. JS-002-133-C3 ,

NOTE: FIVE 6" X 12" CONCRETE SAMPLES WERE TAKEN.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 9-25-96

REMARKS

CONCRETE
PREPLACEMENT
RECORD



DATE: 9-24-96

CONTRACTOR: BECHTEL NEVADA CONT/WO NO. [REDACTED]
 PROJECT: AREA 2 - 2 INJECTION WELLS AREA: AREA 2
 WORK FEATURE/DRAWING NO. 55-002-133-C3
 SPECIFIC LOCATION: WELLS A+B AREA-2
 SUBGRADE COMPACTION REQUIRED N/A
 REQUIRED CONCRETE STRENGTH: 3,000 PSI AT 28 DAYS.
 CU. YDS. ESTIMATED: 4.5 CU. YDS PLACED: 4.5

PLACEMENT CHECKLIST

ITEM	SUPERINTENDENT	INSPECTOR	DATE	COMMENTS
EXCAVATION		<i>2/1</i>	<u>9-24-96</u>	
COMPACTION		<i>2/1</i>	<u>9-24-96</u>	
FORM WORK		<i>2/1</i>	<u>9-24-96</u>	
STEEL		<i>2/1</i>	<u>9-24-96</u>	
EMBEDDED ITEMS		<i>2/1</i>	<u>9-24-96</u>	
JOINTS		<i>2/1</i>	<u>9-24-96</u>	
PLUMBING		<i>N/A</i>		
ELECTRICAL		<i>N/A</i>		
MECHANICAL		<i>N/A</i>		
CONCRETE MIX DESIGN		<i>2/1</i>	<u>9-24-96</u>	
PLACING EQUIPMENT		<i>2/1</i>	<u>9-24-96</u>	
GRADES AND ELEVATION		<i>2/1</i>	<u>9-24-96</u>	

CURE PROTECTION APPLIED YES ☒ NO ☒ TYPE _____

LIST NUMBER OF CYLINDERS MADE AND LOCATION IN PLACEMENT

FIVE (5) 6" x 12" CYLINDERS TAKEN FROM
MIDDLE OF LOAD.

LIST NONCONFORMING ITEMS NONE

INSPECTOR

Louise Nguyen
 BECHTEL NEVADA

Bechtel Nevada
Material Testing Laboratory
P. O. BOX 98521, M/S NTS188
Las Vegas, NV 89193-8521

WORK REQUEST FOR SOILS, CONCRETE & ASPHALT TESTING

PROJECT: CAU-90 Bitcutter Injection Wells CHARGE #: _____ REQUEST NO: _____
REQUESTED BY: J. Pedalino USER/AGENCY: _____
FILLED OUT BY: K. Powell MTL LAB NO: _____
DATE REQUESTED: _____ TIME: _____ DATE TO BE COMPLETED: _____
TYPE OF MATERIAL: 92A1-2A SOURCE OF MATERIAL: A-1
SAMPLES RECEIVED BY: _____ RETURN MATERIALS AFTER TESTING? Y ☐ N ☒
SPECIFICATION REQUIREMENTS: _____

TEST PROCEDURES:
(If not listed below)

SOILS

- | | |
|--|--|
| ☐ ABSORPTION
C127-88 / C128-93 | ☐ PERCENT POROSITY
D853-90/C29-91 |
| ☐ ANGLE OF REPOSE
LLNL SPECS | ☐ PERMEABILITY
D2434-94 |
| ☐ ATTERBURG LIMITS
D4318-95 | ☐ PROCTOR-MODIFIED
D1557-91 |
| ☐ C.B.R.
D1883-94 | ☐ PROCTOR STANDARD
D-698-91 |
| ☐ CONSOLIDATION
D2435-90 | ☐ SAND EQUIVALENT
D2419-91 |
| ☐ DIRECT SHEAR
D3080-90 | ☐ SHRINKAGE
D427-93 |
| ☐ FOAMING AGENT
REECO CE2058A | ☐ SOIL CLASS D1140-92
D2487-93 / D3282-93 |
| ☐ GRADATION D1140-92
C136-95 / C117-95 | ☐ SPECIFIC GRAVITY D854-92
C127-88 / C128-93 |
| ☐ GRAIN DENSITY
D854-92 | ☐ UNIT WEIGHT
C29m-91 |
| ☐ HYDROMETER ANALYSIS
D422-90 | ☐ VISCOSITY
API SPEC 13A 1988 |
| ☐ L.A. ABRASION
C131-89 | ☐ OTHER-SEE REMARKS |
| ☐ MOISTURE
D2216-92/C566-89 | |

CONCRETE

- | |
|---|
| ☐ CONCRETE MIX DESIGN
ACI 211-91 |
| ☒ COMPRESSIVE STRENGTH
C39-94 |
| ☐ FLEXURAL STRENGTH
C78-94 / C293-94 |
| ☐ LENGTH CHANGE C157-93
C174-91 / C490-93 |
| ☐ SAMPLING CONCRETE
C172-90 |
| ☐ SPECIAL STUDY |
| ☐ SPLITTING TENSILE
C42-94 / C496-94 |
| ☐ OTHER-SEE REMARKS |

FIELD

- | |
|---|
| ☐ BATCH PLANT EVAL |
| ☐ CORING
D653-90a |
| ☐ DRILLING |
| ☐ NUCLEAR DENSITY
D2922-91 / D3017-88 |
| ☐ # OF TESTS |
| ☐ # OF RETESTS |
| ☐ PENETROMETERS
D1536-92 |
| ☐ PERCOLATION
NAC 444.798.1 & 2 |
| ☐ PLATE LOAD BEARING
D1196-93 |
| ☐ SAND CONE DENSITY
D1556-90 |
| ☐ SEISMIC STUDY
D653-90a |
| ☐ OTHER-SEE REMARKS |

ASPHALT

- | |
|--|
| ☐ ASPHALT MIX DESIGN |
| ☐ % ASPHALT
D2172-93 |
| ☐ MARSHALL
D1559-89 |
| ☐ OTHER-SEE REMARKS |

MIX NO.: 6 92A1-2A SPECIFICATION REQUIREMENTS: 4,000
CYLINDERS: # MADE 5 SIZE 6X12 DATE MADE 9-24-96 TEST @ DAYS 7 & 28
BREAK LAB# _____ ON _____ LAB# _____ ON _____
BREAK LAB# _____ ON _____ LAB# _____ ON _____
REMARKS _____

NOTE: No samples will be accepted unless accompanied by a completed request form.
A realistic completion date is required to schedule testing.

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: D. VINCENT	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/26/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 1	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY ON 9-25-96 THAT REQUIRED AN INSPECTION REPORT.

CAU-90 (C) WELL

TAGGED WELL AT 55.5 FEET AND USED SIX (6) CU/YDS OF DIPOLE HAIL HIGH STRENGTH GROUTCRETE TO FILL WELL TO TOP OF EXISTING CONCRETE SLAB IN ACCORDANCE WITH DRAWING JS-002-133-C2 & DCN # NLV-96-200AB.

NINE (9) EACH 3" X 6" TEST CYLINDERS AND ONE (1) SET OF EXPANSION BARS WAS MADE AND TAKEN TO THE BECHTEL MATERIAL TEST LAB. RESULTS WILL BE REPORTED WHEN AVAILABLE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature Dillard F. VincentDate 9-26-96

REMARKS

CERTIFICATION OF DRY MATERIALS BATCH WEIGHT

HOLE: BITCUTTER A-2 INJECTION WELL "C" DATE: 9-26-96

MIXTURE DESIGN: Dipole HAIL H. STRENGTH GROUTCRETE TRUCK NO.: 81702
(GYP)

BATCH SIZE (FT³): 162 4 TEAR

CHEM COMP	<u>—</u>	POUNDS
TYPE II	<u>4570</u>	POUNDS
W-60	<u>170</u>	POUNDS
FLY ASH	<u>2570</u>	POUNDS
A1 CONCRETE SAND	<u>10050</u>	POUNDS
D-19	<u>57</u>	POUNDS
PLASTIMENT	<u>1.7 GAL.</u>	POUNDS

MIX TIME	<u>1845</u>	HOUR / DATE
WEIGHT/GAL	<u>17.1</u>	POUNDS
GROUT TEMP	<u>47</u>	°F
WATER	<u>180/190</u>	BARRELS GAL.
ICE	<u>1200</u>	POUNDS

VERIFIED BY

R. L. Johnson

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: 	Inspector: D. VINCENT	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/27/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN: 1	IRWN(R): 1	WRMN:	MASN: 2	SHMT:
TMRS: 2	SURV:	LABR: 1	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU-90 (C) WELL

LABORERS AND FINISHERS PLACED SEVENTEEN (17) CU/YDS OF TYPE 92A1-A2 CONCRETE IN FORMS TO CAP CAU-90 (C) WELL IN ACCORDANCE WITH DRAWING JS-002-133-C2 & DCN # NLV-96-200AB.

FIVE (5) EACH 6" X 12" COMPRESSION TEST CYLINDERS WAS MADE AND TAKEN TO THE BECHTEL MATERIAL TEST LAB. RESULTS WILL BE REPORTED WHEN AVAILABLE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature Dillard F. Linnert

Date 9-27-96

CONCRETE
PREPLACEMENT
RECORD



DATE: 9-27-96

CONTRACTOR: BECHTEL NEVADA CONTWNO NO. [REDACTED]
 PROJECT: AREA 2 INJECTION WELLS AREA: 2
 WORK FEATURE/DRAWING NO. POSTSHOT CONTAINMENT WELL CAP JS-002-133-C3
 SPECIFIC LOCATION: CAU 90 WELL "C"
 SUBGRADE COMPACTION REQUIRED N/A
 REQUIRED CONCRETE STRENGTH: 3000 PSI AT 28 DAYS.
 CU. YDS. ESTIMATED: 16 CU. YDS PLACED: 17

PLACEMENT CHECKLIST

ITEM	SUPERINTENDENT	INSPECTOR	DATE	COMMENTS
EXCAVATION		<u>N.P.U</u>	<u>9-27-96</u>	
COMPACTION		<u>N/A</u>		
FORM WORK		<u>N.P.U</u>	<u>9-27-96</u>	
STEEL		<u>N.P.U</u>	<u>9-27-96</u>	
EMBEDDED ITEMS		<u>N/A</u>		
JOINTS		<u>N.P.U</u>	<u>9-27-96</u>	
PLUMBING		<u>N/A</u>		
ELECTRICAL		<u>N/A</u>		
MECHANICAL		<u>N/A</u>		
CONCRETE MIX DESIGN		<u>N.P.U</u>	<u>9-27-96</u>	
PLACING EQUIPMENT		<u>N.P.U</u>	<u>9-27-96</u>	
GRADES AND ELEVATION		<u>N.P.U</u>	<u>9-27-96</u>	

CURE PROTECTION APPLIED YES ☒ NO ☐ TYPE _____

LIST NUMBER OF CYLINDERS MADE AND LOCATION IN PLACEMENT 5 6x12 tubes
from 1st truck

LIST NONCONFORMING ITEMS N/A

INSPECTOR William F. [Signature]
 BECHTEL NEVADA

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/01/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV: 3	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 9/28/96 TO 10/01/96.

CAU-90 (A) (B) (C) WELLS.

OPERATORS AUGERED POST HOLES AROUND WELL (C) AND PLACING CRUSHED ROCK AROUND WELL (C) WELL (A), AND WELL (B.) SURVEY DEPARTMENT PLACED BRASS CAP MONUMENTS ON WELL (C,) WELL (A,) AND WELL (B) IN ACCORDANCE TO DWG. JS-002-133-C2.

NOTE: ON CONSTRUCTION REPORT NUMBER 9 THIS INSPECTOR STATED THAT THE LABORS TAGGED WELL (C) AT 47 FEET DEEP WHICH INFACIT WELL (C) WAS TAGGED AT 44 FEET DEEP OF 24" BOREHOLE AND CONTINUED TO 55.5 FEET OF 6 1/2" DIA. BOREHOLE WHICH IS THE TOTAL DEPTH.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

[Signature]

Date 10-1-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P No's: N/A
Date: 10/02/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S): 1	DRILLING	OTHERS:

Description

The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

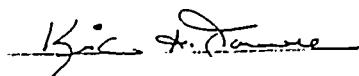
CAU-90 (A) (B) (C) WELLS.

OPERATORS PLACING CRUSHED ROCK AROUND WELL (C) WELL (A), AND WELL (B). LABORS AND IRON WORKERS SET FENCE POSTS IN CONCRETE AROUND WELL (C) AREA IN ACCORDANCE TO DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number

Inspector's Signature



Date 10-3-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/14/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV: 2	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/02/96 TO 10/14/96

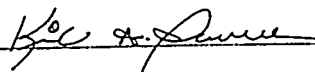
CAU-90 (A) (B) (C) WELLS.

BECHTEL SURVEY DEPARTMENT PLACED BRASS SURVEY MARKERS ON WELL (C), (A), AND (B). IN ACCORDANCE TO DWG. JS 002-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 10-16-96

Construction Activity ReportPage **1** of **1**

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON <i>[Signature]</i>	P.A./I.P. No's: N/A
Date: 10/23/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV: 2	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
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THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/15/96 TO 10/23/96**CAU-90 (A) (B) WELLS.**

IRONWORKERS COMPLETED INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON THE EAST SIDE OF THE FENCE AROUND WELLS (A) & (B) IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature *K. Powell*Date 10-24-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/24/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU-90 (C) WELL.

IRONWORKERS INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AROUND WELL (C) IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature 150 A. Lawrence

Date 10-28-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/28/96	Weather: RAINING		Temperature: Low 43 High 48

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/24/96 TO 10/28/96 DUE TO WEEKEND
CAU-90 (C) WELL.

IRONWORKERS CONTINUE INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AROUND WELL (C) IN
ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number. _____

Inspector's Signature [Signature]

Date 10-29-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/29/96	Weather: CLOUDY		Temperature: Low 43 High 48

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

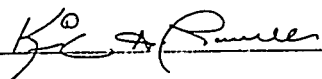
CAU-90 (C) WELL.

IRONWORKERS COMPLETED INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AND (3) STRANS OF SMOOTH WIRE ON TOP AROUND WELL (C). INSTALLED DROP GATE IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 10-30-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL ..	
Charge No: C4UB1ODE	Inspector: L. HUGHES	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 11/21/96	Weather: CLOUDY		Temperature: Low 43 High 48

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THIS WILL BE CONSIDERED THE FINAL REPORT ON THIS PROJECT.

FINAL REPORT

THE FINAL INSPECTION AND ACCEPTANCE OF THIS PROJECT WAS ACCEPTED AND SIGNED OFF.
FINAL ACCEPTANCE FORM WILL FOLLOW, AS-BUILT DWG. WERE RELEASED TO GARY HUDAK OF PEER CO.
(INDEPENDENT ENGINEER).

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Lance Hughes

Date

11-21-96

APPENDIX H
CONCRETE AND GROUT
TESTING REPORTS

SEP 04 1996

**CONCRETE CYLINDER
COMPRESSION TESTS
AS PER ASTM C 39-94**

Bechtel Nevada
MATERIALS TESTING LABORATORY
P. O. BOX 98521, M/S NTS188
LAS VEGAS, NV 89193-8521

CHARGE #: C15BC200

LOG #: N/A

DATE: 09/04/96

Requested by: L. HUGHES

User / Agency: BECHTEL

Date Molded: 08/07/96
Date Received: 08/08/96
Project: AREA 2 INJECTION WELLS
Loc of Placement: AREA 2 WELL C
Specimen Made by: K. POWELL, L. HUGHES
Mix #: 92A1-2A

Time Molded: 1520
Time Stripped: PM
Area: 2
Quantity Represented (cu ft): 13
Batch Plant Inspector: N/A
Required Strength: 3000 (psi) @ 28 Days

MATERIALS	ORIGINAL MIX DESIGN	ADJUSTED MIX
Cement Type: II	581 lbs	577 lbs
Sand:	1424 lbs	1412 lbs
Coarse Aggregate: 3/4"	1194 lbs	1189 lbs
Water Pounds:	350.5 lbs	283.7 lbs
Admixture: AIR	1.45 oz	1.44 oz
Admixture:	N/A	N/A
Admixture:	N/A	N/A
Total Weight of Materials:	3551 lbs/yd	3462 lbs/yd
Unit Weight of Concrete:	N/A	N/A lbs/ft ³
Yield:	N/A	N/A

Weather: CLEAR

Ambient Temp. (F): 108 Concrete Temp. (F): 73 Slump: 4 1/2" % Air: Unknown

Equipment used: Dial Caliper, PTL # Y 4480 Calibration Date: 04/03/96 Calibration Date: 04/03/97
METTLER PC16, Y8803 Calibration Date: 06/03/96 Calibration Date: 06/03/97

Tested on Machine: FORNEY DOE# 158848 Calibration Date: 03/06/96 Calibration Date: 09/06/97

Average 7 Day Strength 2750 psi Average 14 Day Strength N/A psi
Average 28 Day Strength 4525 psi Average 56 Day Strength N/A psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
2	2972	7	08/14/96	26.01	6.01	6.04	6.03	28.51	83500	2930	Cone	D. Herrington
2	2973	7	08/14/96	26.08	6.01	6.02	6.02	28.42	73000	2570	Columnar	D. Herrington
2	2974	28	09/04/96	25.96	6.03	6.00	6.02	28.42	128000	4500	Cone	T. High
2	2975	28	09/04/96	25.86	6.02	6.00	6.01	28.37	130500	4600	Shear	T. High
2	2976	28	09/04/96	25.98	6.00	6.01	6.01	28.32	127000	4480	Cone	T. High
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

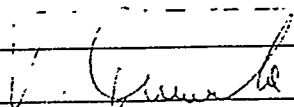
REMARKS: WITHIN REQUIRED SPECIFICATION

CC: J. PEDALINO BECHTEL

D. JOHNSON BECHTEL

A. OLSEN BECHTEL

MIL BECHTEL FILES

Checked by: 

Date: 9-4-96

Page 1 of 1

OCT 29 1996

CONCRETE CYLINDER COMPRESSION TESTS AS PER ASTM C 39-94	Bechtel Nevada MATERIALS TESTING LABORATORY P. O. BOX 98521, M/S NTS188 LAS VEGAS, NV 89193-8521	CHARGE #: C4UB10DE LOG #: N/A DATE: 10/21/96 User / Agency: BECHTEL
Requested by: J. PEDALINO		
Date Molded: 09/23/96 Date Received: 09/24/96 Project: BIT CUTTER CAU 90-A Loc of Placement: INJECTION WELL - A Specimen Made by: J. AAMODT Mix #: HIGH STRENGTH GROUTCRETE (GYP)	Time Molded: 1136 Time Stripped: PM Area: 2 Quantity Represented (cu ft): Unknown Batch Plant Inspector: H. TUTHILL Required Strength: 3000 (psi) @ 28 Days	

MATERIALS	BATCH WEIGHT	ADJUSTED MIX
Chem Comp II	0 lbs	N/A lbs
Type II	4570 lbs	N/A lbs
W - 60	170 lbs	N/A lbs
Fly Ash	2570.0 lbs	N/A lbs
A/1 Concrete Sand	10050 lbs	N/A oz
D - 19	57 lbs	N/A oz
Plastiment	1.7 gal.	N/A lbs
Water	6 Barrels	0 lbs/yd
Ice	1200 lbs	N/A lbs/ft3
Yield:	N/A	N/A

Weather: CLEAR	Ambient Temp. (F): 78	Concrete Temp. (F): 59	Slump: N/A	% Air: N/A
Equipment used: Dial Caliper, PTL # Y 4480	Calibration Date: 04/03/96	Calibration Date: 04/03/97		
METTLER PC16, Y8803	Calibration Date: 06/03/96	Calibration Date: 06/03/97		
Tested on Machine: FORNEY DOE# 158848	Calibration Date: 03/06/96	Calibration Date: 09/06/97		

Average		7 Day Strength		6505 psi		Average		14 Day Strength		7135 psi		
Average		28 Day Strength		7365 psi		Average		56 Day Strength		N/A psi		
Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3269	7	09/30/96	3.16	3.00	2.99	3.00	7.05	44800	6360	Cone/Split	K. Olmstead
1	3270	7	09/30/96	3.10	2.99	2.99	2.99	7.02	45600	6490	Cone/Split	K. Olmstead
1	3271	7	09/30/96	3.11	3.00	2.99	3.00	7.05	47000	6670	Cone/Split	K. Olmstead
1	3272	14	10/07/96	3.13	2.99	2.99	2.99	7.02	47300	6740	Cone	T. High
1	3273	14	10/07/96	3.11	2.99	2.99	2.99	7.02	48800	6950	Cone	T. High
1	3274	14	10/07/96	3.14	2.99	3.01	3.00	7.07	54600	7720	Cone	T. High
1	3275	28	10/21/96	3.13	2.99	2.99	2.99	7.02	54600	7780	Cone	D. Herrington
1	3276	28	10/21/96	3.14	3.00	2.99	3.00	7.05	52700	7480	Cone	D. Herrington
1	3277	28	10/21/96	3.11	2.99	2.99	2.99	7.02	48000	6840	Cone	D. Herrington

CC: **E. MITCHELL** **BECHTEL**
J. PEDALINO **BECHTEL**
D. JOHNSON **BECHTEL**
A. OLSON **BECHTEL**
MTL BECHTEL FILES

REMARKS: WITHIN REQUIRED SPECIFICATION

REVISED CC: ONLY 10/29/96

Checked by: *V. G...*Date: *10/21/96*

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1

of

1

OCT 29 1996

CONCRETE CYLINDER COMPRESSION TESTS AS PER ASTM C 39-94	Bechtel Nevada MATERIALS TESTING LABORATORY P. O. BOX 98521, M/S NTS188 LAS VEGAS, NV 89193-8521	CHARGE #: C4UB10DE LOG #: N/A DATE: 10/24/96 User / Agency: BECHTEL
Requested by: K. POWELL		
Date Molded: 09/27/96 Date Received: 09/28/96 Project: BIT CUTTER Loc of Placement: INJECTION WELL CAPS WELL "C" Specimen Made by: D. VINCENT Mix #: 92A1-2A	Time Molded: Unknown Time Stripped: AM Area: 2 Quantity Represented (cu ft): 17 Batch Plant Inspector: N/A Required Strength: 3000 (psi) @ 28 Days	

MATERIALS	ORIGINAL MIX DESIGN	ADJUSTED MIX
Cement Type: II	581 lbs	577 lbs
Sand:	1424 lbs	1419 lbs
Coarse Aggregate: 3/4"	1194 lbs	1194 lbs
Water Pounds:	350.5 lbs	208.6 lbs
Admixture: AIR	1.45 oz	1.50 oz
Admixture: ICE	N/A	N/A lbs
Admixture: Water Reducer 400N	N/A	N/A oz
Total Weight of Materials:	3551 lbs/yd	3398 lbs/yd
Unit Weight of Concrete:	N/A	N/A lbs/ft3
Yield:	N/A	N/A

Weather: CLEAR WARM			
Ambient Temp. (F): 65	Concrete Temp. (F): 74	Slump: 3"	% Air: 3.25
Equipment used: Dial Caliper, PTL # Y 4480	Calibration Date: 04/03/96	Calibration Date: 04/03/97	
METTLER PC16, Y8803	Calibration Date: 06/03/96	Calibration Date: 06/03/97	
Tested on Machine: FORNEY DOE# 158848	Calibration Date: 03/06/96	Calibration Date: 09/06/97	

Average 6 Day Strength	2760 psi	Average 14 Day Strength	N/A psi
Average 27 Day Strength	4130 psi	Average 56 Day Strength	N/A psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3294	6	10/03/96	25.63	6.00	6.00	6.00	28.27	78500	2780	Cone	K. Olmstead
1	3295	6	10/03/96	25.69	6.02	5.99	6.01	28.32	77500	2740	Cone	K. Olmstead
1	3296	27	10/24/96	25.60	6.02	6.01	6.02	28.42	115500	4060	Shear	D. Herrington
1	3297	27	10/24/96	25.68	6.03	6.01	6.02	28.46	118500	4160	Shear	D. Herrington
1	3298	27	10/24/96	25.61	6.02	6.01	6.02	28.42	118500	4170	Cone/Shear	D. Herrington
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

REMARKS: WITHIN REQUIRED SPECIFICATION	CC: E. MITCHELL BECHTEL J. PEDALINO BECHTEL D. JOHNSON BECHTEL A. OLSON BECHTEL MTL BECHTEL FILES
REVISED CC: ONLY 10/29/96	
Checked by: <i>[Signature]</i>	Date: 10/24/96

Page 1 of 1

001 23 1996

CONCRETE CYLINDER.
COMPRESSION TESTS
AS PER ASTM C 39-94

Bechtel Nevada
MATERIALS TESTING LABORATORY
P. O. BOX 98521, M/S NTS188
LAS VEGAS, NV 89193-8521

CHARGE #: C4UB10DE
LOG #: N/A
DATE: 10/24/96

Requested by: J. PEDALINO

User / Agency: BECHTEL

Date Molded: 09/26/96
Date Received: 09/27/96
Project: BIT CUTTER CAU 90-C
Loc of Placement: INJECTION WELL - C
Specimen Made by: J. AAMODT
Mix #: DIPOLE HAIL HIGH STRENGTH GROUTCRETE (GYP)

Time Molded: 1800
Time Stripped: PM
Area: 2
Quantity Represented (cu yd): 6
Batch Plant Inspector: D. JOHNSON
Required Strength: 3000 (psi) @ 28 Days

MATERIALS	BATCH WEIGHT	ADJUSTED MIX
Chem Comp II	0 lbs	N/A lbs
Type II	4570 lbs	N/A lbs
W - 60	170 lbs	N/A lbs
Fly Ash	2570 lbs	N/A lbs
A/1 Concrete Sand	10050 lbs	N/A lbs
D - 19	57 lbs	N/A lbs
Plastiment	1.7 gal.	N/A gal.
Water	190 gal.	N/A gal.
Ice	1200 lbs	N/A lbs
Yield:	N/A	N/A

Weather: CLEAR

Ambient Temp. (F): 75 Concrete Temp. (F): 50 Slump: N/A % Air: N/A
Equipment used: Dial Caliper, PTL # Y 4480 Calibration Date: 04/03/96 Calibration Date: 04/03/97
METTLER PC16, Y8803 Calibration Date: 06/03/96 Calibration Date: 06/03/97
Tested on Machine: FORNEY DOE# 158848 Calibration Date: 03/06/96 Calibration Date: 09/06/97

Average 7 Day Strength 8360 psi Average 14 Day Strength 8330 psi
Average 28 Day Strength 8825 psi Average 56 Day Strength N/A psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3283	7	10/03/96	3.18	2.97	3.00	2.99	7.00	56000	8000	Cone/Split	K. Olmstead
1	3284	7	10/03/96	3.17	2.98	2.99	2.99	7.00	61000	8720	Cone/Split	K. Olmstead
1	3285	14	10/10/96	3.17	3.00	3.00	3.00	7.07	57800	8180	Cone/Split	T. High
1	3286	14	10/10/96	3.18	2.99	3.01	3.00	7.07	56800	8040	Cone/Split	T. High
1	3287	14	10/10/96	3.17	2.99	2.99	2.99	7.02	61600	8770	Cone/Split	T. High
1	3288	28	10/24/96	3.16	3.00	2.99	3.00	7.05	61000	8660	Cone	D. Herrington
1	3289	28	10/24/96	3.17	3.00	3.00	3.00	7.07	64200	9080	Cone	D. Herrington
1	3290	28	10/24/96	3.17	3.00	3.00	3.00	7.07	61800	8740	Shear	D. Herrington
1	3291	HOLD	09/26/96	3.17								

REVISED CC: ONLY 10/29/96

REMARKS: WITHIN REQUIRED SPECIFICATION (3291 will be held for 56 days)

W.E.S DESIGN CYLINDERS CURED 140 DEGREES FAHRENHEIT +/- 5 DEGREES AT 100% HUMIDITY FOR SIX DAYS THEN DEMOLDED AND PUT IN PLASTIC BAGS AND STORED IN A DRY PLACE AT ABOUT 75 DEGREES FAHRENHEIT UNTIL BREAK DATES.

CC: E. MITCHELL BECHTEL
J. PEDALINO BECHTEL
D. JOHNSON BECHTEL
A. OLSON BECHTEL
MTL BECHTEL FILES

Checked by: *[Signature]*

Date: 10/24/96

Page 1 of 1

OCT 29 1996

CONCRETE CYLINDER
COMPRESSION TESTS
AS PER ASTM C 39-94

Bechtel Nevada
MATERIALS TESTING LABORATORY
P. O. BOX 98521, M/S NTS188
LAS VEGAS, NV 89193-8521

CHARGE #: C4UB10DE
LOG #: N/A
DATE: 10/28/96

Requested by: J. PEDALINO

User / Agency: BECHTEL

Date Molded: 09/24/96
Date Received: 09/25/96
Project: BIT CUTTER CAU 90
Loc of Placement: INJECTION WELLS
Specimen Made by: K. POWELL
Mix #: 92A1-2A

Time Molded: 1430
Time Stripped: PM
Area: 2
Quantity Represented (cu ft): 4.5
Batch Plant Inspector: N/A
Required Strength: 3000 (psi) @ 28 Days

MATERIALS	ORIGINAL MIX DESIGN	ADJUSTED MIX
Cement Type: II	581 lbs	576 lbs
Sand:	1424 lbs	1422 lbs
Coarse Aggregate: 3/4"	1194 lbs	1178 lbs
Water Pounds:	350.5 lbs	207.7 lbs
Admixture: AIR	1.45 oz	1.33 oz
Admixture: ICE	N/A	N/A lbs
Admixture: Water Reducer 400N	N/A	N/A oz
Total Weight of Materials:	3551 lbs/yd	3383 lbs/yd
Unit Weight of Concrete:	N/A	N/A lbs/ft ³
Yield:	N/A	N/A

Weather: CLEAR
Ambient Temp. (F): 86 Concrete Temp. (F): 76 Slump: 4 1/2" % Air: 4
Equipment used: Dial Caliper, PTL # Y 4480 Calibration Date: 04/03/96 Calibration Date: 04/03/97
METTLER PC16, Y8803 Calibration Date: 06/03/96 Calibration Date: 06/03/97
Tested on Machine: FORNEY DOE# 158848 Calibration Date: 03/06/96 Calibration Date: 09/06/97

Average		7 Day Strength		3145 psi		Average		14 Day Strength		N/A		psi	
Average		28 Day Strength		4135 psi		Average		56 Day Strength		N/A		psi	
Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By	
					1	2	Avg						
1	3278	7	10/01/96	25.97	6.04	5.98	6.01	28.37	87000	3070	Cone	T. High	
1	3279	7	10/01/96	25.96	6.02	6.04	6.03	28.56	92000	3220	Cone	T. High	
1	3280	28	10/22/96	26.00	6.02	6.03	6.03	28.51	119500	4190	Cone	D. Herrington	
1	3281	28	10/22/96	26.02	6.01	6.01	6.01	28.37	125000	4410	Cone	D. Herrington	
1	3282	28	10/22/96	25.96	6.02	6.01	6.02	28.42	108000	3800	Columnar	D. Herrington	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

REMARKS: WITHIN REQUIRED SPECIFICATION

CC: E. MITCHELL BECHTEL
J. PEDALINO BECHTEL
D. JOHNSON BECHTEL
A. OLSON BECHTEL
MTL BECHTEL FILES

REVISED FOR ONLY 10/29/96

REQUIRED STRENGTH REVISED 10/28/96 BY D. JOHNSON

Checked by: *[Signature]*

Date: 10/23/96

Page 1 of 1

APPENDIX I

POST-CLOSURE INSPECTION CHECKLIST

AREA 2, BITCUTTER & POSTSHOT INJECTION WELLS, POST-CLOSURE INSPECTION CHECKLIST

Date of Last Inspection:	Reason for Last Inspection:
Responsible Agency:	Project Manager:
Inspection Date:	
Inspector (name, title, organization):	
Assistant Inspector (name, title, organization):	

A. GENERAL INSTRUCTIONS

1. All checklist items must be completed and detailed comments made to document the results of the site inspection. The completed checklist is part of the field record of the inspection. Additional pages should be used as necessary to ensure that a complete record is made. Attach the additional pages and number all pages upon completion of the inspection.
3. Any checklist line item marked by an inspector in a SHADED BOX, must be fully explained or an appropriate reference to previous reports provided. The purpose of this requirement is to provide a written explanation of inspector observations and the inspector's rationale for conclusions and recommendations. Explanations are to be placed on additional attachments and cross-referenced appropriately. Explanations, in addition to narrative, will take the form of sketches, measurements, annotated site maps.
4. The site inspection is a walking inspection of the entire site including the perimeter and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
5. A standard set of color 35mm photographs is required. In addition, all anomalous features or new features (such as changes in adjacent area land use) are to be photographed. A photo log entry will be made for each photograph taken.
6. This unit will be inspected biannually with formal reporting to the Nevada Division of Environmental Protection to be done annually. The annual report will include an executive summary, this inspection checklist with field notes and photo log attached, and recommendations and conclusions.

B. PREPARATION (To be completed prior to site visit)	YES	NO	EXPLANATION
1. Site as-built plans and site base map reviewed			
2. Previous inspection reports reviewed			
a. Were anomalies or trends detected on previous inspections?			
b. Was maintenance performed?			
3. Site maintenance and repair records reviewed			
a. Has site repair resulted in a change from as-built conditions?			
b. Are revised as-builts available that reflect repair changes?			

C. SITE INSPECTION (To be completed during inspection)	YES	NO	EXPLANATION
1. Adjacent off-site features within watershed areas			
a. Have there been any changes in use of adjacent area?			
b. Are there any new roads or trails?			
c. Has there been a change in the position of nearby washes?			
d. Has there been lateral excursion or erosion/deposition of nearby washes?			
e. Are there new drainage channels?			
f. Change in surrounding vegetation?			
2. Security fence, signs			
a. Displacement of fences, site markers, boundary markers, or other controls?			
b. Have any signs been damaged or removed? (Number of signs replaced: _____)			
c. Were gates locked?			

3. Waste Unit covers

- #### 4. Photo Documentation

- #### D. FIELD CONCLUSIONS

- Person/Agency to whom report made:**

2. *Are more frequent inspections required?*
3. *Are existing maintenance/repair actions satisfactory?*
4. *Is other maintenance/repair necessary?*

5. Rationale for field conclusions:

E. CERTIFICATION

I have conducted an inspection of the Area 2 Bitcutter & Postshot Shop Containment Injection Wells, Corrective Action Unit 90, at the NTS in accordance with the procedures of the Post-Closure Permit (including the Post-Closure Plan) as recorded on this checklist, attached sheets, field notes, photo logs, and photographs.

Chief Inspector's Signature:

Printed Name:

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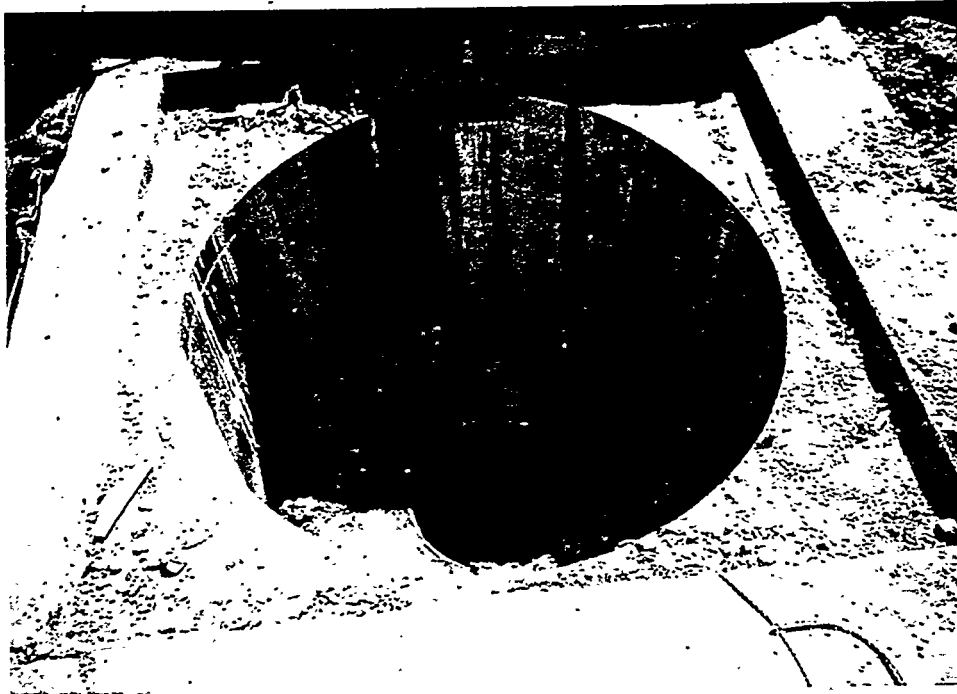
2

Bechtel Nevada
P. O. Box 98521
Las Vegas, NV 89193-8521

J. R. Kannard
S. J. Nacht
A. L. Olson
M. D. Shotton

1
1
1
1

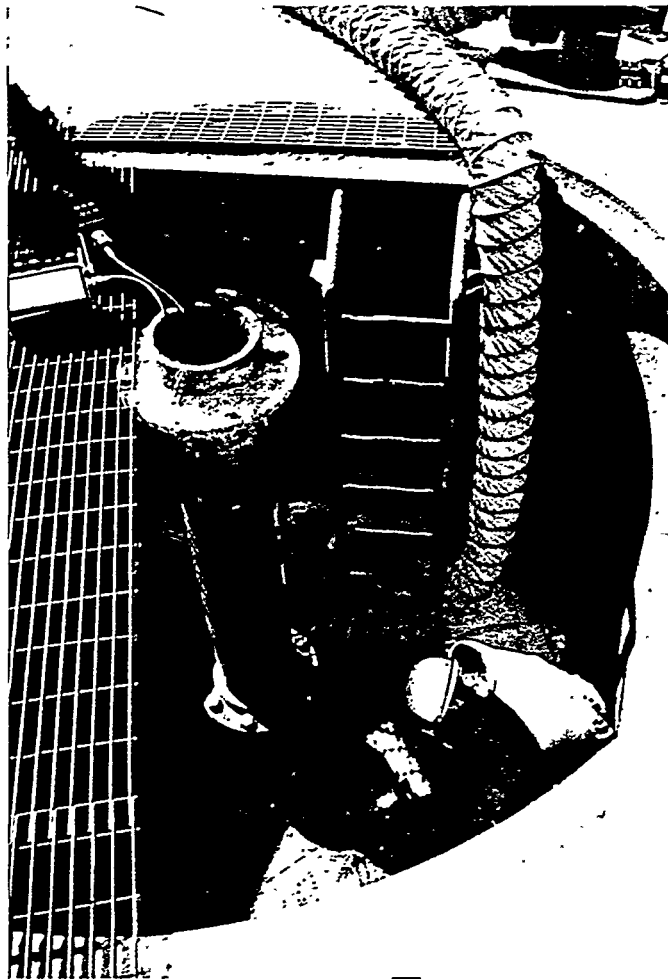
APPENDIX F
CLOSURE ACTIVITY PHOTOGRAPHS



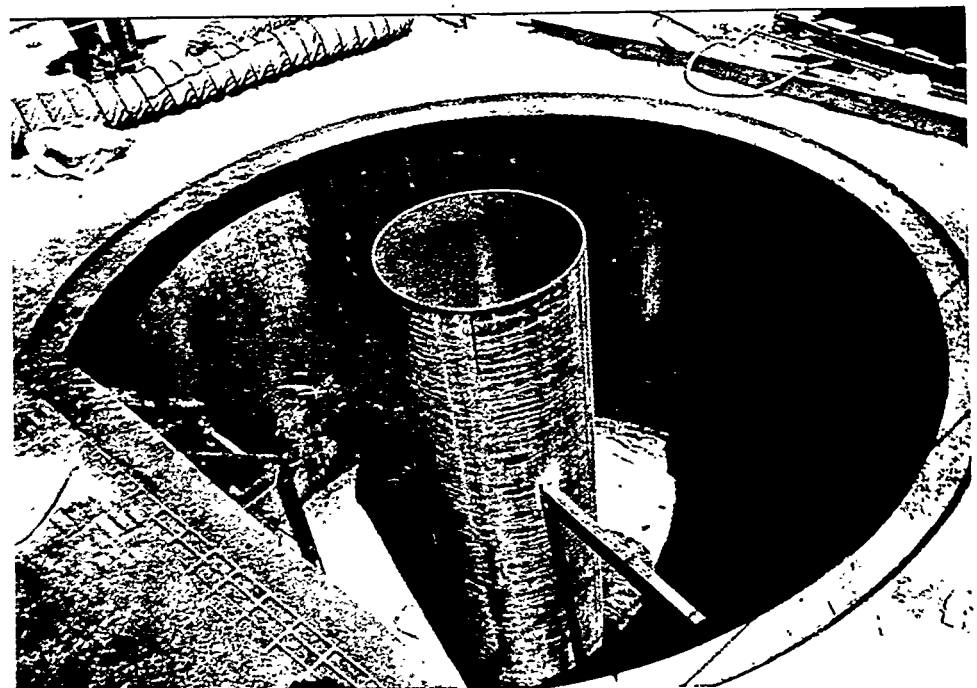
Bitcutter Inside Injection Well
prior to source removal
August 6, 1996



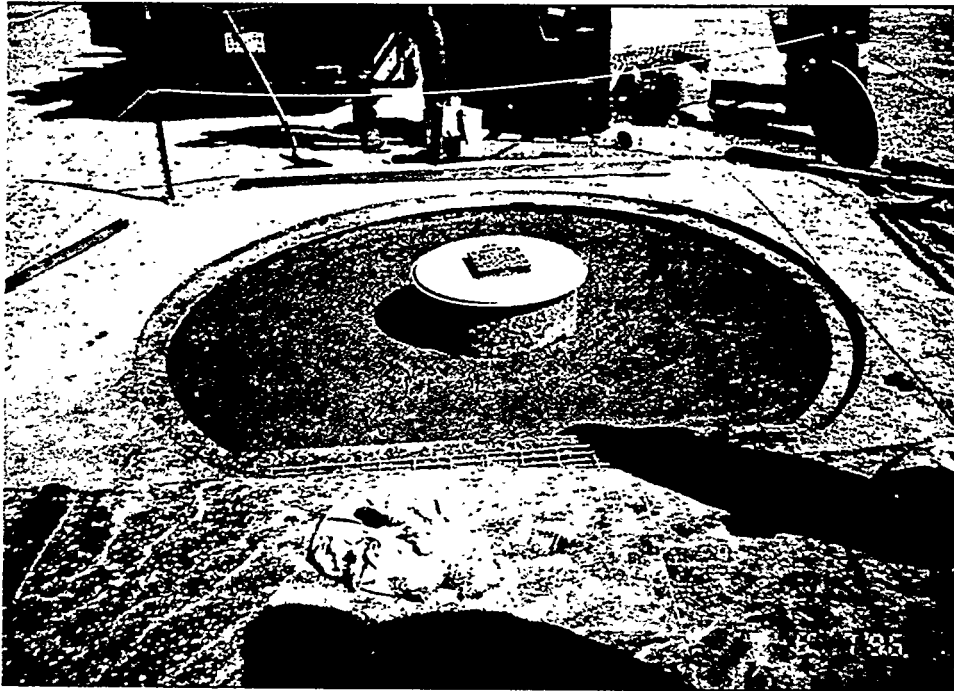
Bitcutter Inside Injection Well
source removal
August 6, 1996



Postshot Containment Shop
Injection Well
removal of surface casing
August 6, 1996



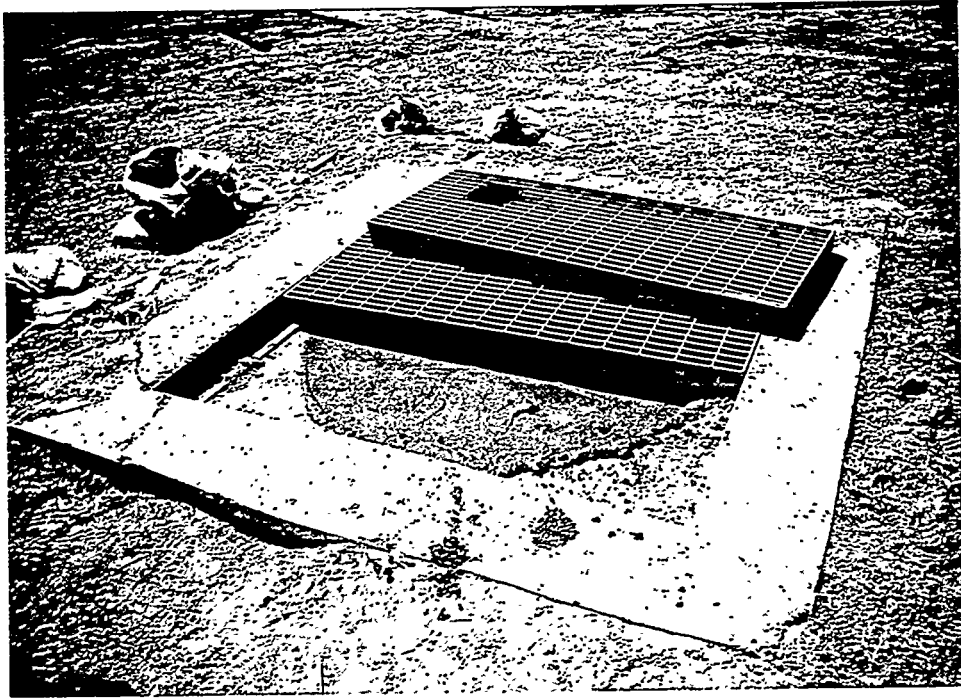
Postshot Containment Shop
Injection Well
new surface casing
August 7, 1996



Postshot Containment Shop
Injection Well
sump backfill complete
August 7, 1996



Postshot Containment Shop
Injection Well
source material removal
August 8, 1996



Bitcutter Inside Injection Well
grout plug complete
September 23, 1996



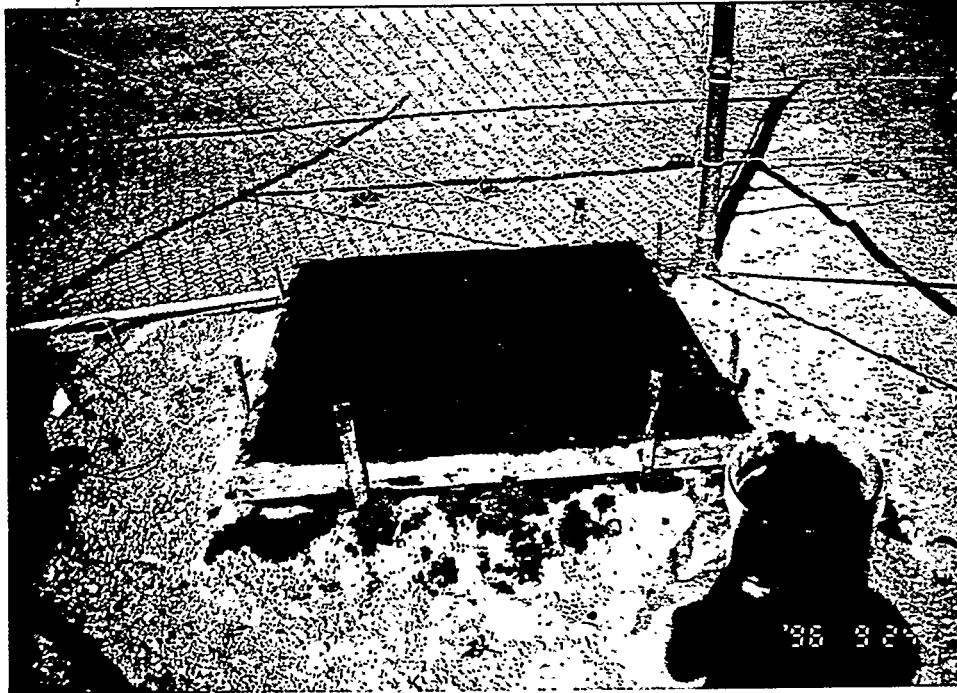
Bitcutter Inside Injection Well
grout cylinders for compressive strength tests
September 23, 1996



Bitcutter Inside Injection Well
concrete cover installation
September 24, 1996



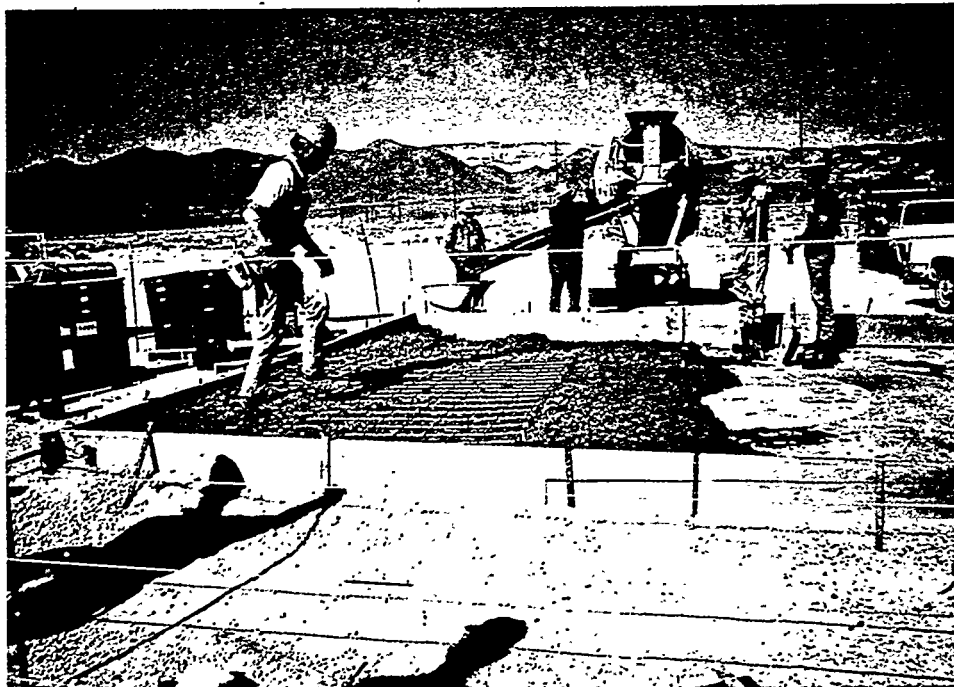
Bitcutter Inside Injection Well
concrete cylinders for compressive strength tests
September 24, 1996



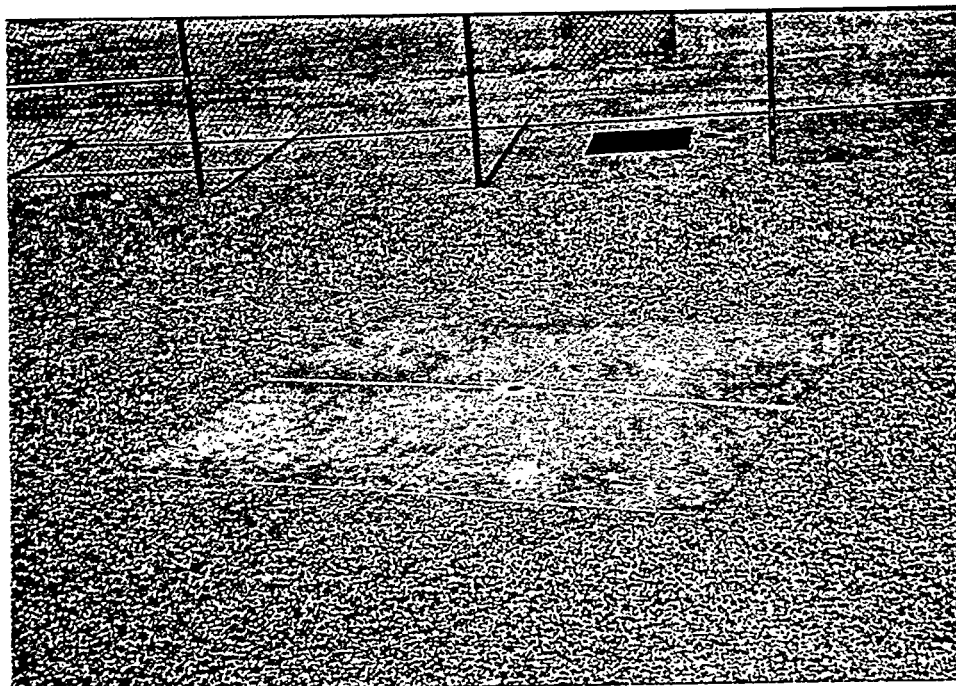
Bitcutter Outside Injection Well
concrete cover installation
September 24, 1996



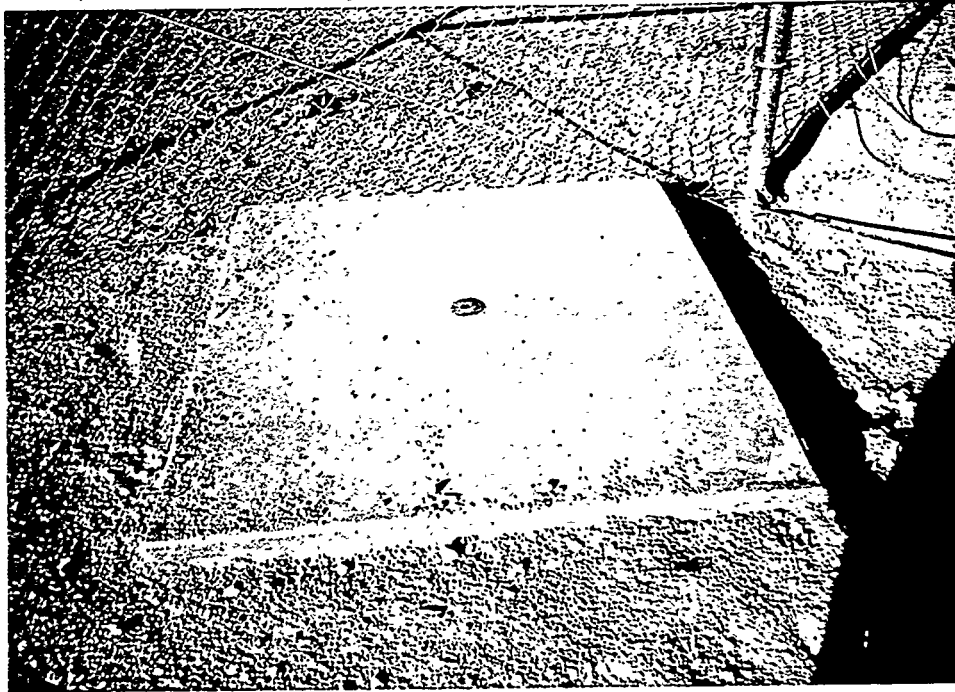
Postshot Containment Shop Injection Well
placement of grout plug
September 26, 1996



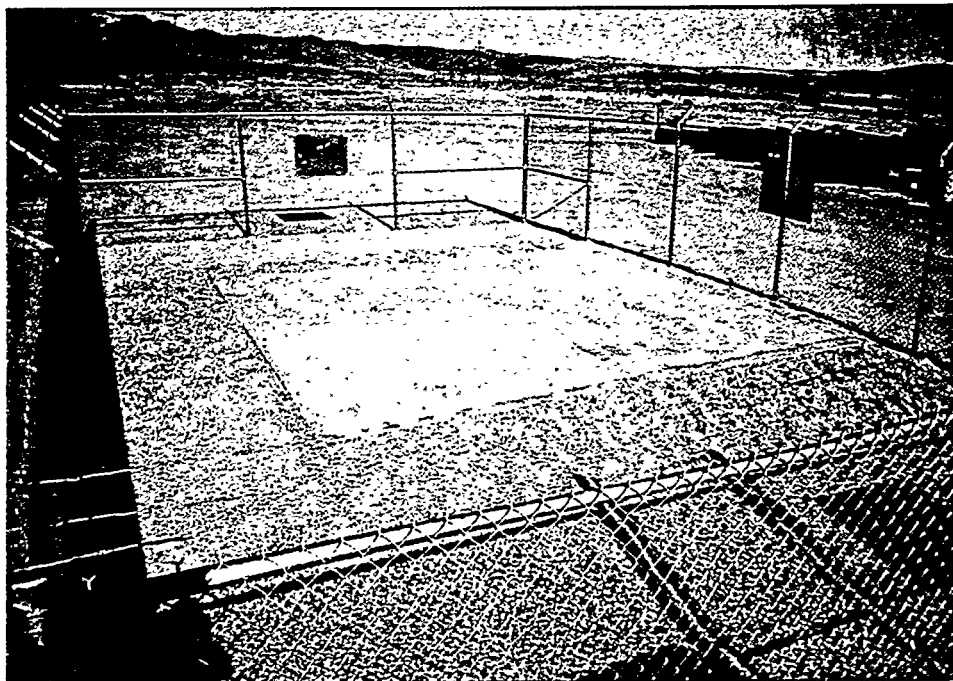
Postshot Containment Shop Injection Well
installation of concrete cover
September 27, 1996



Bitcutter Inside Injection Well
completed concrete cover
November 7, 1996



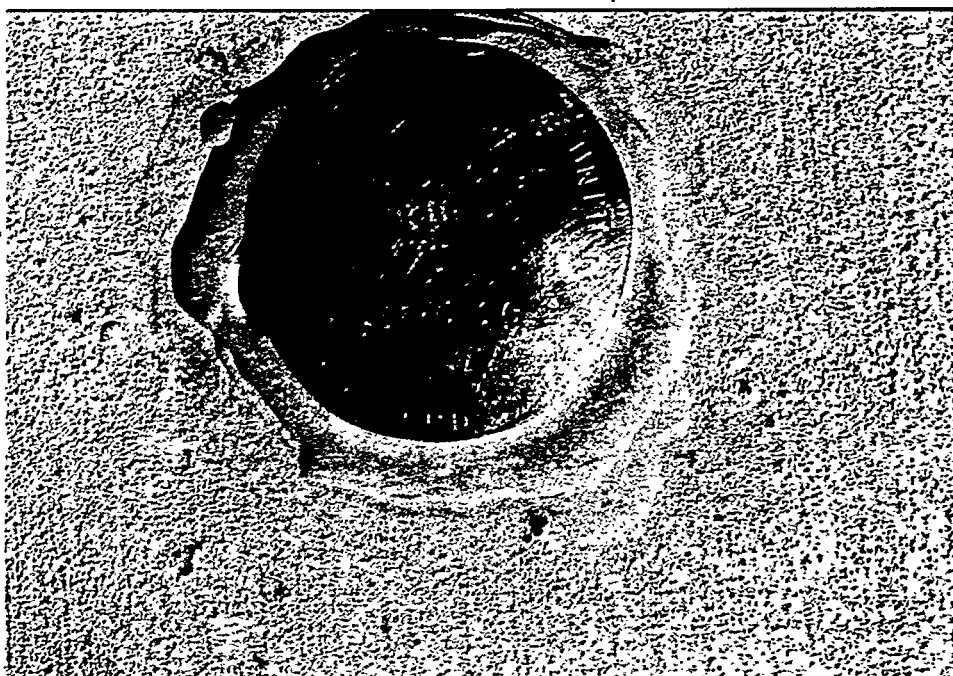
Bitcutter Outside Injection Well
completed concrete cover
October 1, 1996



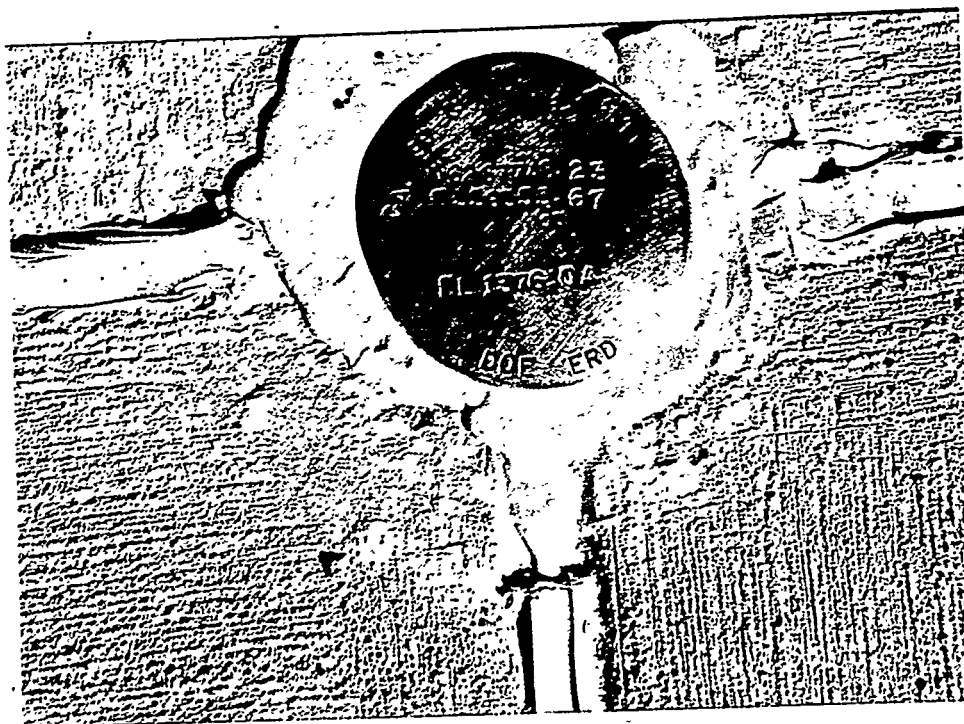
Postshot Containment Shop Injection Well
completed concrete cover
November 7, 1996



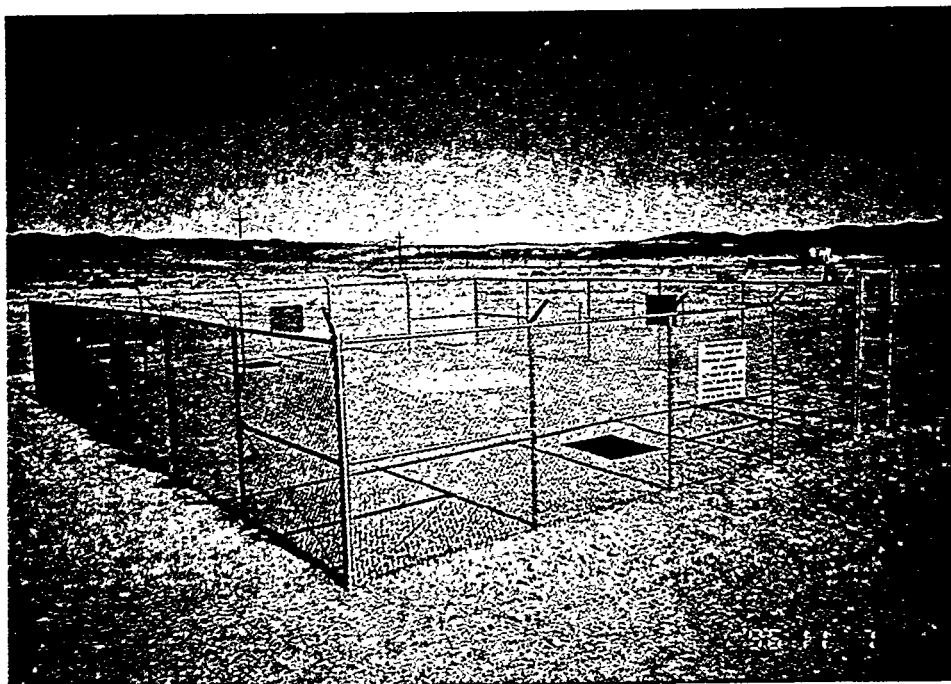
Bitcutter Inside Injection Well
CAU 90-A brass survey marker
October 21, 1996



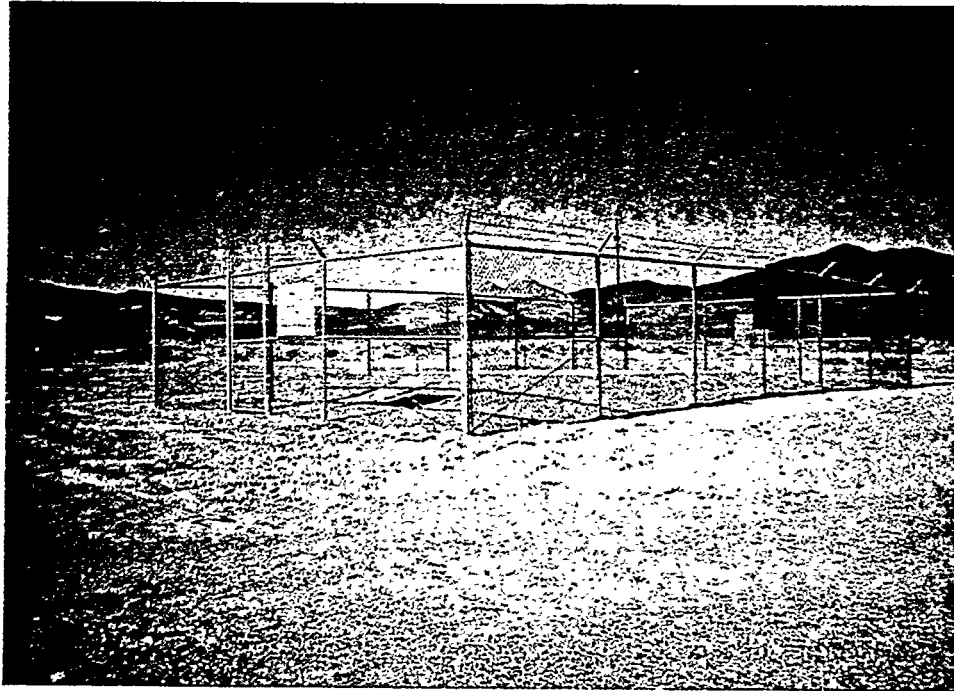
Bitcutter Outside Injection Well
CAU 90-B brass survey marker
October 21, 1996



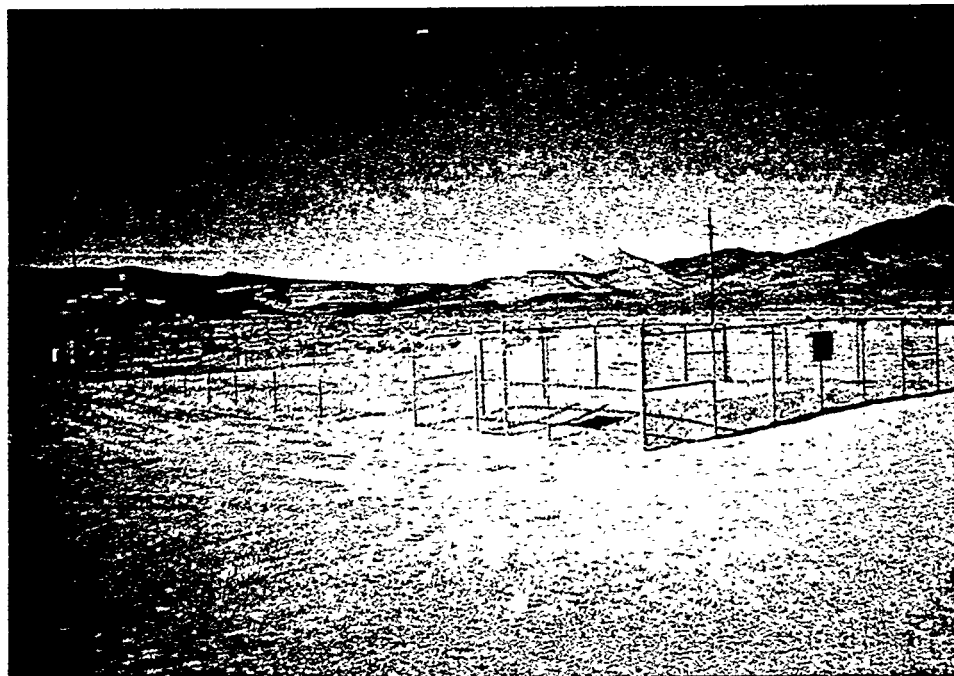
Postshot Containment Shop Injection Well
CAU 90-C brass survey marker
October 21, 1996



Bitcutter Inside Injection Well
chainlink fence and signs
November 7, 1996



Postshot Containment Shop Injection Well
chainlink fence and signs
November 7, 1996



Corrective Action Unit 90
November 7, 1996

APPENDIX G
CONSTRUCTION ACTIVITY REPORTS

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/05/96	Weather: CLEAR		Temperature: Low 52 High 93

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

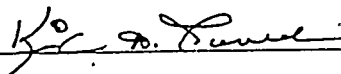
Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
-------------	--	-----	----

THIS WILL BE CONSIDERED THE REPORT ON THIS PROJECT.

CAU 90-C WELL

WELDER BEGAN REMOVING THE EXISTING 10" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3.

Inspector's Signature



Date

8-6-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>FOR P.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/06/96	Weather: CLEAR		Temperature: Low 56 High 96

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
-------------	--	-----	----

CAU 90-C WELL

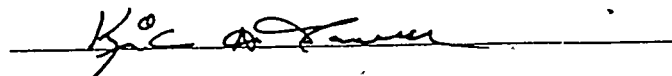
WELDER COMPLETED REMOVING THE EXISTING 10" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3.

NOTE: DRILLERS AND LABORS REMOVED APPROX. 135 GALLONS OF SLUDGE FROM WELL A.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 8-8-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: <u> </u>	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/07/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 2	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
-------------	--	-----	----

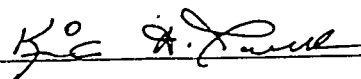
CAU 90-C WELL

WELDER COMPLETED INSTALLING THE 24" PIPE SPOOL IN ACCORDANCE WITH DWG. JS-002-133-C3
LABORS PLACED 13 CUBIC YARDS OF CONCRETE AROUND THE 24" PIPE SPOOL INSIDE OF CAU 90-C IN
ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number

Inspector's Signature

Date 8-7-96

CONCRETE PRE-PLACEMENT

CONTRACTOR: BECHTEL P.A./I.P. NUMBER(S): N/A
 PROJECT: AREA 2 INSJECTION WELLS AREA: 2
 WORK FEATURE: STEMMING
 SPECIFIC LOCATION: Well C
 REQUIRED STRENGTH: 3,000 PSI AT: 3,000, 28 DAYS
 CU. YARDS ESTIMATED: 13 CU. YARDS PLACED: 13
 SPEC. & DWG. NOS./OTHER INSPECTION CRITERIA: JS-002-133-C2

ITEM	INITIALS	DATE
FOUNDATION/SUBGRADE	<i>JH</i>	8-7-96
FORMWORK	<i>N/A</i>	
REINFORCEMENT STEEL	<i>N/A</i>	
EMBEDDED ITEMS/WATERSTOP	<i>JH</i>	8-7-96
JOINTS/ADJACENT CONCRETE	<i>N/A</i>	
PLUMBING	<i>N/A</i>	
ELECTRICAL	<i>N/A</i>	
MECHANICAL	<i>JH</i>	8-9-96
LINE, GRADE & ELEVATION	<i>N/A</i>	
CLEAN-UP	<i>JH</i>	8-7-96
PLACING/CONSOLIDATION EQUIPMENT	<i>N/A</i>	

ABOVE ITEMS ARE SATISFACTORY

YES [☒]

NO [☐]

REMARKS:

INSPECTOR:

Laurel Hughes Eric A. Fonda

DATE: 8-7-96

CONCRETE PLACEMENT

CONTRACTOR: BECHTEL P.A./W.O. NUMBER(S): N/A
 PROJECT: AREA 2 INJECTION WELLS AREA: 2
 LOCATION: AREA 2
 DATE: 8-7-96 WEATHER: CLEAR (HOT)
 M & TE USED: N/A CALIBRATION DUE DATE: N/A
 NCR/CD CONDITION: N/A MIX TYPE: 92A1-2A
 START TIME: 14:37 COMPLETION TIME: 15:30

ITEM	INITIALS	DATE
PREPLACEMENT INSPECTION COMPLETED	<i>X/H</i>	8-7-96
VERIFIED BATCH TICKET INFORMATION	<i>X/H</i>	8-7-96
TEST FREQUENCY/RESULTS	<i>X/H</i>	8-7-96
TRANSPORTING/DISCHARGING CONCRETE	<i>X/H</i>	8-7-96
SURFACES RECEIVING CONCRETE	<i>X/H</i>	8-7-96
CONCRETE CONVEYANCE	<i>X/H</i>	8-7-96
CONCRETE DEPOSITION	<i>X/H</i>	8-7-96
PLACING METHODS	<i>X/H</i>	8-7-96
CONSOLIDATION OF CONCRETE	<i>X/H</i>	8-7-96
SHEATHING CLEARANCE INTEGRITY	<i>X/H</i>	8-7-96
PLACING/CONSOLIDATION EQUIPMENT	<i>N/A</i>	

ABOVE ITEMS ARE SATISFACTORY

YES [☒]

NO [☐]

REMARKS:

INSPECTOR:

Samuel Hughes & John A. Luman

DATE:

8-7-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D. HARRIS	P.A./I.P. No's: N/A
Date: 08/08/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 2	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes	No
-------------	--	-----	----

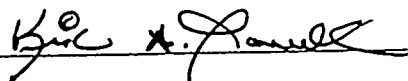
CAU 90-C WELL

LABORS BEGAN CLEANING OUT THE SLUDGE FROM THE BOTTOM OF CAU-90-C WELL . .

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number.

Inspector's Signature

Date 8-8-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: <i>For D.H.</i> D HARRIS	P.A./I.P. No's: N/A
Date: 08/13/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 8/9/96 TO 8/13/96

CAU 90-C WELL

OPERATORS BEGAN DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND AREA IN ACCORDANCE WITH
DWG.JS-002-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number

Inspector's Signature

K. A. Powell

Date 8-15-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/14/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90-C WELL

OPERATORS CONTINUE DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND AREA IN ACCORDANCE WITH
DWG.JS-002-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Inspector's Signature K. A. Powell

Index Number

Date 8-15-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P No's. N/A
Date: 08/15/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90- (A) AND (C) WELL

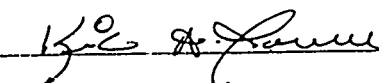
OPERATORS COMPLETED DRILLING POST HOLES FOR CHAIN LINK FENCE AROUND WELL (A) AND WELL(C) .

LABORERS AND IRON WORKERS SET POSTS IN CONCRETE IN ACCORDANCE WITH DWG.JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number:

Inspector's Signature



Date 8-19-96

Construction Activity ReportPage 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/19/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

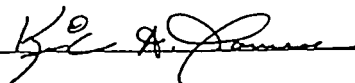
OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MA\$N:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

THERE WAS NO CONSTRUCTION ACTIVITY FROM 8-15-96 TO 8-19-96 DUE TO WEEKEND**AU 90- (A) AND (C) WELL****IRON WORKERS CONTINUE ERECTING FENCE IN ACCORDANCE WITH DWG.JS-002-133-C2.****NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED**

Index Number:

Inspector's Signature

Date 8-20-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/20/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90- (A) AND (C) WELL

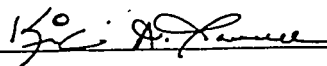
IRON WORKERS BEGAN INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

LABORS TAGGED "C" WELL DEPTH AT 47' IN ACCORDANCE WITH INSPECTION TESTING RESPONSIBILITY MATRIX DATED 7-31-96.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number.

Inspector's Signature



Date 8-21-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: ██████████	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/21/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

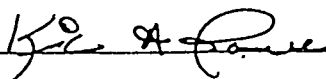
CAU 90- (A) AND (C) WELL

IRON WORKERS CONTINUE INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature



Date 8-26-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 08/22/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R): 2	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 3	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 1	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
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CAU 90- (A) AND (C) WELL

IRON WORKERS CONTINUE INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON FENCE POST IN ACCORDANCE WITH DWG.JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

index Number. _____

Inspector's Signature [Signature]

Date 8-26-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/12/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 3	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY ON THIS PROJECT REQUIRING INSPECTION FROM 8/22/96 TO 9/12/96.

CAU 90- (C) WELL

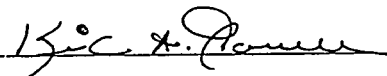
DRILLERS AND LABORS TAGGED WELL "C" AT 44 FEET, THEN BEGAN DRILLING TO 49 FEET IN ACCORDANCE WITH DWG.JS-002-133-C2.

NOTE: ONE CORE SAMPLE WAS TAKEN BETWEEN 49 AND 51 FEET, SAMPLE WAS BLACK SLUDGE. ONE SAMPLE WAS TAKEN BETWEEN 51 AND 53 FEET, SAMPLE WAS BLACK SLUDGE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 9-16-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/16/96	Weather: CLEAR		Temperature: Low 56 High 108

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING: 3	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY FROM 9/13/96 TO 9/16/96 DUE TO WEEKEND.

CAU 90- (C) WELL

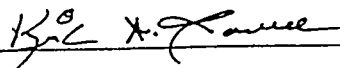
DRILLERS TOOK TWO CORE SAMPLE FROM WELL (C), IN ACCORDANCE WITH DWG.JS-002-133-C2.

NOTE: ONE CORE SAMPLE WAS TAKEN BETWEEN 53 AND 55 FEET, SAMPLE WAS BLACK GRANULATED SLUDGE.
DRILLERS DRILLED TO 55.5 FEET AND A SAMPLE WAS TAKEN FROM THE DRILL BIT, SAMPLE WAS SAND..

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: - - - -

Inspector's Signature

Date 9-19-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/23/96	Weather: CLEAR		Temperature: Low 56 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 9/17/96 TO 9/23/96.

CAU 90- (A) WELL

TAGGED WELL (A) AT 49.5 FEET AND FILLED WITH DIPOLE HAIL HIGH STRENGTH GROUTCRETE TO TOP OF EXISTING CONCRETE SLAB, SIX (6) CUBIC YARDS WAS PLACED IN ACCORDANCE WITH DWG. JS-002-133-C2. AND DCN # NLV-96-200AB.

NOTE: BECHTEL MATERIAL TEST LAB SAMPLED THE GROUT MATERIAL, TEST RESULTS TO FOLLOW.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED .

Index Number _____

Inspector's Signature *K. Powell*

Date 9-24-96

CONCRETE/GROUT PLACEMENT RECORD

Bechtel Nevada

INSPECTOR K. Powell

LOCATION AREA 2 CAU 90-A

DATE 9-23-96

STRUCTURE Bitcutter Injection well-A

WEATHER Clear

EST. VOL. 6 CU. YDS.

AMB. TEMP. 78°

ACT. VOL. 6 CU. YDS:

REQ. STR. 3,000 @ 28 days

DESIGN NO. DHHS4

ID NUMBER _____

DESIGN NO. Dipole HAIL High Strength GROUTCRETE (GYP)

UNLESS OTHERWISE NOTED ALL ITEMS VERIFIED ON THIS DOCUMENT CONFORM TO APPROVED CRITERIA

INSPECTOR'S INITIALS _____

INSPECTOR'S INITIALS.

[illegible]

REMARKS

CERTIFICATION OF DRY MATERIALS BATCH WEIGHT

HOLE: BIT CUTTER

DATE: 9/23/96

MIXTURE DESIGN: HIGH STRENGTH GROUTCRETE (GYP)

TRUCK NO.: B1701

BATCH SIZE (FT³): _____

3 T E A R

CHEM COMP	<u>✓</u>	POUNDS
TYPE II	<u>4570</u>	POUNDS
W-60	<u>170</u>	POUNDS
FLY ASH	<u>2570</u>	POUNDS
A1 CONCRETE SAND	<u>10050</u>	POUNDS
D-19	<u>57</u>	POUNDS
PLASTIMENT	<u>1.7 GAL</u>	POUNDS

MIX TIME	<u>1120</u>	HOUR / DATE
WEIGHT/GAL	<u>16.5</u>	POUNDS
GROUT TEMP	<u>54</u>	°F
WATER	<u>5.95</u>	BARRELS
ICE	<u>1200</u>	POUNDS

H. R. Tuttle
VERIFIED BY



Reynolds Electrical & Engineering Co., Inc.

CEMENT MATERIAL WEIGHT SHEET

CONTROL NO. _____

DATE 7-18-96 LOCATION A-12 BP USER _____

UNIT NO. 83282 DRIVER _____

FRONT TIER

SLURRY TYPE DHHS9

DHHS9 ③
162

WEIGHT 7367

REAR TIER

SLURRY TYPE DHHS9

#3

PRODUCT #	SILO NO.	TYPE	WEIGHT
PRODUCT #1	<u>19</u>	<u>Fly Ash</u>	<u>2570</u>
PRODUCT #2	<u>5</u>	<u>Type II</u>	<u>4570</u>
PRODUCT #3	<u>22</u>	<u>W-CO</u>	<u>170</u>
PRODUCT #4	_____	_____	_____
PRODUCT #5	_____	_____	_____
PRODUCT #5	_____	_____	_____
ADDITIVE #1	_____	_____	_____
ADDITIVE #2	_____	<u>17-19</u>	<u>57</u>
ADDITIVE #3	_____	_____	_____
ADDITIVE #4	_____	_____	_____

TOTALS

CU. FT. SLURRY 162 WEIGHT 7367

TIME STARTED _____

TIME ENDED _____

BATCH NO'S. 304

BULK PLANT OPERATOR [Signature]

INSPECTOR _____

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/24/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S): 1	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

CAU 90- (A) (B) WELLS.

THIS INSPECTOR WITNESSED THE PLACEMENT OF 92-A1-2A CONCRETE FOR CAPING THE WELLS, 4.5 CUBIC YARDS WAS PLACED IN ACCORDANCE TO DWG. JS-002-133-C3,

NOTE: FIVE 6" X 12" CONCRETE SAMPLES WERE TAKEN.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature K. PowellDate 9-25-96

INSPECTOR K. Powell

DATE 9-24-96
WEATHER clear
AMB. TEMP. 86°
REQ. STR. 4,000
3,000 @ 28 days
NUMBER

UNLESS OTHERWISE NOTED ALL ITEMS VERIFIED ON THIS DOCUMENT CONFORM TO APPROVED CRITERIA

[illegible]

REMARKS

CONCRETE
PREPLACEMENT
RECORD



DATE: 9-24-96

CONTRACTOR: BECHTEL NEVADA CONTW/O NO. [REDACTED]
 PROJECT: AREA 2 - 2 INJECTION WELLS AREA: AREA 2
 WORK FEATURE/DRAWING NO. 55-002-133-C3
 SPECIFIC LOCATION: WELLS A+B AREA-2
 SUBGRADE COMPACTION REQUIRED N/A
 REQUIRED CONCRETE STRENGTH: 3,000 PSI AT 28 DAYS.
 CU. YDS. ESTIMATED: 4.5 CU. YDS PLACED: 4.5

PLACEMENT CHECKLIST

ITEM	SUPERINTENDENT	INSPECTOR	DATE	COMMENTS
EXCAVATION		<u>2/1</u>	<u>9-24-96</u>	
COMPACTION		<u>2/1</u>	<u>9-24-96</u>	
FORM WORK		<u>2/1</u>	<u>9-24-96</u>	
STEEL		<u>2/1</u>	<u>9-24-96</u>	
EMBEDDED ITEMS		<u>2/1</u>	<u>9-24-96</u>	
JOINTS		<u>2/1</u>	<u>9-24-96</u>	
PLUMBING		<u>1/1</u>		
ELECTRICAL		<u>1/1</u>		
MECHANICAL		<u>1/1</u>		
CONCRETE MIX DESIGN		<u>2/1</u>	<u>9-24-96</u>	
PLACING EQUIPMENT		<u>2/1</u>	<u>9-24-96</u>	
GRADES AND ELEVATION		<u>2/1</u>	<u>9-24-96</u>	

CURE PROTECTION APPLIED YES ☒ NO ☒ TYPE

LIST NUMBER OF CYLINDERS MADE AND LOCATION IN PLACEMENT

FIVE (5) 6" X 12" CYLINDERS TAKEN FROM
MIDDLE OF LOAD.

LIST NONCONFORMING ITEMS NONE

INSPECTOR

[Signature]
 BECHTEL NEVADA

Bechtel Nevada
Material Testing Laboratory
P. O. BOX 98521, M/S NTS188
Las Vegas, NV 89193-8521
WORK REQUEST FOR SOILS, CONCRETE & ASPHALT TESTING

PROJECT: CAU-90 BitCutter Injection Wells CHARGE #: _____ REQUEST NO: _____
REQUESTED BY: J. Pedalino USER/AGENCY: _____
FILLED OUT BY: K. Powell MTL LAB NO: _____
DATE REQUESTED: _____ TIME: _____ DATE TO BE COMPLETED: _____
TYPE OF MATERIAL: 92A1-2A SOURCE OF MATERIAL: A-1
SAMPLES RECEIVED BY: _____ RETURN MATERIALS AFTER TESTING? Y ☐ N ☒
SPECIFICATION REQUIREMENTS: _____

TEST PROCEDURES:
(If not listed below)

SOILS

- | | |
|--|--|
| ☐ ABSORPTION
C127-88 / C128-93 | ☐ PERCENT POROSITY
D653-90/C29-91 |
| ☐ ANGLE OF REPOSE
LLNL SPECS | ☐ PERMEABILITY
D2434-94 |
| ☐ ATTERBURG LIMITS
D4318-95 | ☐ PROCTOR-MODIFIED
D1557-81 |
| ☐ C.B.R.
D1883-94 | ☐ PROCTOR STANDARD
D-698-91 |
| ☐ CONSOLIDATION
D2435-90 | ☐ SAND EQUIVALENT
D2419-91 |
| ☐ DIRECT SHEAR
D3080-90 | ☐ SHRINKAGE
D427-93 |
| ☐ FOAMING AGENT
REECO CE2058A | ☐ SOIL CLASS D1140-92
D2487-93 / D3282-93 |
| ☐ GRADATION D1140-92
C136-95 / C117-95 | ☐ SPECIFIC GRAVITY D854-92
C127-88 / C128-93 |
| ☐ GRAIN DENSITY
D854-92 | ☐ UNIT WEIGHT
C29m-91 |
| ☐ HYDROMETER ANALYSIS
D422-90 | ☐ VISCOSITY
API SPEC 13A 1988 |
| ☐ L.A. ABRASION
C131-89 | ☐ OTHER-SEE REMARKS |
| ☐ MOISTURE
D2216-92/C566-89 | |

CONCRETE

- | |
|---|
| ☐ CONCRETE MIX DESIGN
ACI 211-91 |
| ☒ COMPRESSIVE STRENGTH
C39-94 |
| ☐ FLEXURAL STRENGTH
C78-94 / C293-94 |
| ☐ LENGTH CHANGE C157-93
C174-91 / C490-93 |
| ☐ SAMPLING CONCRETE
C172-90 |
| ☐ SPECIAL STUDY |
| ☐ SPLITTING TENSILE
C42-94 / C496-94 |
| ☐ OTHER-SEE REMARKS |

FIELD

- | |
|---|
| ☐ BATCH PLANT EVAL |
| ☐ CORING
D653-90a |
| ☐ DRILLING |
| ☐ NUCLEAR DENSITY
D2922-91 / D3017-88 |
| ☐ # OF TESTS |
| ☐ # OF RETESTS |
| ☐ PENETROMETERS
D1586-92 |
| ☐ PERCOLATION
NAC 444.796.1 & 2 |
| ☐ PLATE LOAD BEARING
D1196-93 |
| ☐ SAND CONE DENSITY
D1556-90 |
| ☐ SEISMIC STUDY
D653-90a |
| ☐ OTHER-SEE REMARKS |

ASPHALT

- | |
|--|
| ☐ ASPHALT MIX DESIGN |
| ☐ % ASPHALT
D2172-93 |
| ☐ MARSHALL
D1559-89 |
| ☐ OTHER-SEE REMARKS |

MIX NO.: 6 92A1-2A SPECIFICATION REQUIREMENTS: 4,000
CYLINDERS: # MADE 5 SIZE 6X12 DATE MADE 9-24-96 TEST @ DAYS 7 & 28
BREAK LAB# _____ ON _____ LAB# _____ ON _____
BREAK LAB# _____ ON _____ LAB# _____ ON _____
REMARKS _____

NOTE: No samples will be accepted unless accompanied by a completed request form.
A realistic completion date is required to schedule testing.

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: D. VINCENT	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/26/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS: 1	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

 Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY ON 9-25-96 THAT REQUIRED AN INSPECTION REPORT.

CAU-90 (C) WELL

TAGGED WELL AT 55.5 FEET AND USED SIX (6) CU/YDS OF DIPOLE HAIL HIGH STRENGTH GROUTCRETE TO FILL WELL TO TOP OF EXISTING CONCRETE SLAB IN ACCORDANCE WITH DRAWING JS-002-133-C2 & DCN # NLV-96-200AB.

NINE (9) EACH 3" X 6" TEST CYLINDERS AND ONE (1) SET OF EXPANSION BARS WAS MADE AND TAKEN TO THE BECHTEL MATERIAL TEST LAB. RESULTS WILL BE REPORTED WHEN AVAILABLE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

 Inspector's Signature Dillard F. Vincent

Index Number: _____

 Date 9-26-96

CERTIFICATION OF DRY MATERIALS BATCH WEIGHT

HOLE: BITCUTTER A-2 INJECTION WELL "C" DATE: 9-26-96

MIXTURE DESIGN: Dipole HAIL H. STRENGTH GROUTCRETE TRUCK NO.: 81702
(GYP)

BATCH SIZE (FT³): 162 4 TEAR

CHEM COMP	<u>-</u>	POUNDS
TYPE II	<u>4570</u>	POUNDS
W-60	<u>170</u>	POUNDS
FLY ASH	<u>2570</u>	POUNDS
A1 CONCRETE SAND	<u>10050</u>	POUNDS
D-19	<u>57</u>	POUNDS
PLASTIMENT	<u>1.7 GAL</u>	POUNDS

MIX TIME	<u>1845</u>	HOUR / DATE
WEIGHT/GAL	<u>17.1</u>	POUNDS
GROUT TEMP	<u>47</u>	°F
WATER	<u>180/190</u>	BARRELS GAL.
ICE	<u>1200</u>	POUNDS

R. K. Johnson
VERIFIED BY

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: 09-00000	Inspector: D. VINCENT	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 09/27/96	Weather: CLEAR		Temperature: Low 43 High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS:	CRPN: 1	IRWN(R): 1	WRMN:	MASN: 2	SHMT:
TMRS: 2	SURV:	LABR: 1	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
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CAU-90 (C) WELL

LABORERS AND FINISHERS PLACED SEVENTEEN (17) CU/YDS OF TYPE 92A1-A2 CONCRETE IN FORMS TO CAP CAU-90 (C) WELL IN ACCORDANCE WITH DRAWING JS-002-133-C2 & DCN # NLV-96-200AB.

FIVE (5) EACH 6" X 12" COMPRESSION TEST CYLINDERS WAS MADE AND TAKEN TO THE BECHTEL MATERIAL TEST LAB. RESULTS WILL BE REPORTED WHEN AVAILABLE.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature Dillard F. VincentDate 9-27-96

CONCRETE
PREPLACEMENT
RECORD

Bechtel Nevada

DATE: 9-27-96

CONTRACTOR: BECHTEL NEVADA CONT/WO NO. [REDACTED]
 PROJECT: AREA 2 INJECTION WELLS AREA: 2
 WORK FEATURE/DRAWING NO. POSTSHOT CONTAINMENT WELL CAP JS-002-133-C3
 SPECIFIC LOCATION: CAU 90 WELL "C"
 SUBGRADE COMPACTION REQUIRED N/A
 REQUIRED CONCRETE STRENGTH: 3000 PSI AT 28 DAYS.
 CU. YDS. ESTIMATED: 16. CU. YDS PLACED: 17

PLACEMENT CHECKLIST

ITEM	SUPERINTENDENT	INSPECTOR	DATE	COMMENTS
EXCAVATION		<u>N.F.U</u>	<u>9-27-96</u>	
COMPACTION		<u>N/A</u>		
FORM WORK		<u>N.F.U</u>	<u>9-27-96</u>	
STEEL		<u>N.F.U</u>	<u>9-27-96</u>	
EMBEDDED ITEMS		<u>N/A</u>		
JOINTS		<u>N.F.U</u>	<u>9-27-96</u>	
PLUMBING		<u>N/A</u>		
ELECTRICAL		<u>N/A</u>		
MECHANICAL		<u>N/A</u>		
CONCRETE MIX DESIGN		<u>N.F.U</u>	<u>9-27-96</u>	
PLACING EQUIPMENT		<u>N.F.U</u>	<u>9-27-96</u>	
GRADES AND ELEVATION		<u>N.F.U</u>	<u>9-27-96</u>	

CURE PROTECTION APPLIED YES ☒ NO ☐ TYPE _____

LIST NUMBER OF CYLINDERS MADE AND LOCATION IN PLACEMENT 5 6x12 taken
from 1st truck

LIST NONCONFORMING ITEMS N/A

INSPECTOR William F. Vincent
 BECHTEL NEVADA

[illegible]

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: 	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON 	P.A./I.P. No's: N/A
Date: 10/01/96	Weather: CLEAR		Temperature: Low 43. High 85

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV: 3	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY REQUIRING INSPECTION FROM 9/28/96 TO 10/01/96.

CAU-90 (A) (B) (C) WELLS.

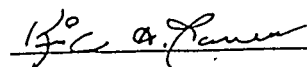
OPERATORS AUGERED POST HOLES AROUND WELL (C) AND PLACING CRUSHED ROCK AROUND WELL (C) WELL (A), AND WELL (B.) SURVEY DEPARTMENT PLACED BRASS CAP MONUMENTS ON WELL (C,) WELL (A,) AND WELL (B) IN ACCORDANCE TO DWG. JS-002-133-C2.

NOTE: ON CONSTRUCTION REPORT NUMBER 9 THIS INSPECTOR STATED THAT THE LABORS TAGGED WELL (C) AT 47 FEET DEEP WHICH INFACIT WELL (C) WAS TAGGED AT 44 FEET DEEP OF 24" BOREHOLE AND CONTINUED TO 55.5 FEET OF 6 1/2" DIA. BOREHOLE WHICH IS THE TOTAL DEPTH.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 10-1-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/02/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
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Labor Force

OPRS: 2	CRPN:	IRWN(R):	WRMN:	MASN: 2	SHMT:
TMRS:	SURV:	LABR: 2	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S): 1	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

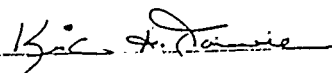
CAU-90 (A) (B) (C) WELLS.

OPERATORS PLACING CRUSHED ROCK AROUND WELL (C) WELL (A), AND WELL (B). LABORS AND IRON WORKERS SET FENCE POSTS IN CONCRETE AROUND WELL (C) AREA IN ACCORDANCE TO DWG JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number

Inspector's Signature



Date 10-3-96

Construction Activity Report

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/14/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV: 2	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/02/96 TO 10/14/96

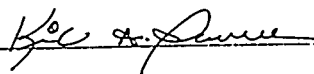
CAU-90 (A) (B) (C) WELLS.

BECHTEL SURVEY DEPARTMENT PLACED BRASS SURVEY MARKERS ON WELL (C), (A), AND (B). IN ACCORDANCE TO DWG. JS 002-133-C2

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Date 10-16-96

Construction Activity ReportPage **1** of **1**

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON <i>[Signature]</i>	P.A./I.P. No's: N/A
Date: 10/23/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV: 2	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
-------------	--	--

THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/15/96 TO 10/23/96**CAU-90 (A) (B) WELLS.**

IRONWORKERS COMPLETED INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC ON THE EAST SIDE OF THE FENCE AROUND WELLS (A) & (B) IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature *K. A. Powell*Date 10-24-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/24/96	Weather: CLEAR		Temperature: Low 43 High 78

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

 Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No
CAU-90 (C) WELL.

IRONWORKERS INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AROUND WELL (C) IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

 Inspector's Signature 150 K. Powell

 Date 10-28-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/28/96	Weather: RAINING		Temperature: Low 43 High 48

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THERE WAS NO CONSTRUCTION ACTIVITY FROM 10/24/96 TO 10/28/96 DUE TO WEEKEND

CAU-90 (C) WELL.

IRONWORKERS CONTINUE INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AROUND WELL (C) IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

 Inspector's Signature [Signature]

 Date 10-29-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL	
Charge No: [REDACTED]	Inspector: K. POWELL	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 10/29/96	Weather: CLOUDY		Temperature: Low 43 High 48

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R): 3	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description	The Quality of Material and Work Meet the Requirements of Criteria	Yes ☒ No
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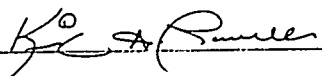
CAU-90 (C) WELL.

IRONWORKERS COMPLETED INSTALLING #10 (2" X 2") CHAIN LINK WIRE FABRIC FENCE AND (3) STRANS OF SMOOTH WIRE ON TOP AROUND WELL (C). INSTALLED DROP GATE IN ACCORDANCE WITH DWG. JS-002-133-C2.

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number _____

Inspector's Signature

Date 10-30-96

Construction Activity Report

Page 1 of 1

Project: AREA 2 INJECTION WELLS		Contractor: BECHTEL ..	
Charge No: C4UB1ODE	Inspector: L. HUGHES	Insp. Supv.: L. D. JOHNSON	P.A./I.P. No's: N/A
Date: 11/21/96	Weather: CLOUDY		Temperature: Low 43 High 48

Supervision

Construction Superintendent: N. CAMPBELL	Project Manager: A. OLSON	Project Engineer: J. PEDADLINO
---	------------------------------	-----------------------------------

Labor Force

OPRS:	CRPN:	IRWN(R):	WRMN:	MASN:	SHMT:
TMRS:	SURV:	LABR:	LNMN:	PNTR:	
INSUL:	FTTRS:	MINERS:	IRWN(S):	DRILLING:	OTHERS:

Description The Quality of Material and Work Meet the Requirements of Criteria Yes ☒ No

THIS WILL BE CONSIDERED THE FINAL REPORT ON THIS PROJECT.

FINAL REPORT

THE FINAL INSPECTION AND ACCEPTANCE OF THIS PROJECT WAS ACCEPTED AND SIGNED OFF.
FINAL ACCEPTANCE FORM WILL FOLLOW, AS-BUILT DWG. WERE RELEASED TO GARY HUDAK OF PEER CO.
(INDEPENDENT ENGINEER).

NO OTHER CONSTRUCTION ACTIVITY WAS OBSERVED

Index Number: _____

Inspector's Signature

Lance Hughes

Date

11-21-96

APPENDIX H
CONCRETE AND GROUT
TESTING REPORTS

SEP 04 1996

**CONCRETE CYLINDER
COMPRESSION TESTS
AS PER ASTM C 39-94**

Bechtel Nevada
MATERIALS TESTING LABORATORY
P. O. BOX 98521, M/S NT5188
LAS VEGAS, NV 89193-8521

CHARGE #: C15BC200

LOG #: N/A

DATE: 09/04/96

Requested by: L. HUGHES

User / Agency: BECHTEL

Date Molded: 08/07/96
Date Received: 08/08/96
Project: AREA 2 INJECTION WELLS
Loc of Placement: AREA 2 WELL C
Specimen Made by: K. POWELL, L. HUGHES
Mix #: 92A1-2A

Time Molded: 1520
Time Stripped: PM
Area: 2
Quantity Represented (cu ft): 13
Batch Plant Inspector: N/A
Required Strength: 3000 (psi) @ 28 Days

MATERIALS	ORIGINAL MIX DESIGN	ADJUSTED MIX
Cement Type: II	581 lbs	577 lbs
Sand:	1424 lbs	1412 lbs
Coarse Aggregate: 3/4"	1194 lbs	1189 lbs
Water Pounds:	350.5 lbs	283.7 lbs
Admixture: AIR	1.45 oz	1.44 oz
Admixture:	N/A	N/A
Admixture:	N/A	N/A
Total Weight of Materials:	3551 lbs/yd	3462 lbs/yd
Unit Weight of Concrete:	N/A	N/A lbs/ft3
Yield:	N/A	N/A

Weather: CLEAR

Ambient Temp. (F): 108 Concrete Temp. (F): 73 Slump: 4 1/2" % Air: Unknown

Equipment used: Dial Caliper, PTL # Y 4480 Calibration Date: 04/03/96 Calibration Date: 04/03/97
METTLER PC16, Y8803 Calibration Date: 06/03/96 Calibration Date: 06/03/97

Tested on Machine: FORNEY DOE# 158848 Calibration Date: 03/06/96 Calibration Date: 09/06/97

Average 7 Day Strength 2750 psi Average 14 Day Strength N/A psi
Average 28 Day Strength 4525 psi Average 56 Day Strength N/A psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
2	2972	7	08/14/96	26.01	6.01	6.04	6.03	28.51	83500	2930	Cone	D. Herrington
2	2973	7	08/14/96	26.08	6.01	6.02	6.02	28.42	73000	2570	Columnar	D. Herrington
2	2974	28	09/04/96	25.96	6.03	6.00	6.02	28.42	128000	4500	Cone	T. High
2	2975	28	09/04/96	25.86	6.02	6.00	6.01	28.37	130500	4600	Shear	T. High
2	2976	28	09/04/96	25.98	6.00	6.01	6.01	28.32	127000	4480	Cone	T. High
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

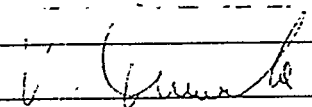
REMARKS: WITHIN REQUIRED SPECIFICATION

CC: J. PEDALINO BECHTEL

D. JOHNSON BECHTEL

A. OLSEN BECHTEL

MIL BECHTEL FILES

Checked by: 

Date: 9-4-96

Page 1 of 1

OCT 29 1996

CONCRETE CYLINDER COMPRESSION TESTS AS PER ASTM C 39-94		Bechtel Nevada MATERIALS TESTING LABORATORY P. O. BOX 98521, M/S NTS188 LAS VEGAS, NV 89193-8521		CHARGE #: C4UB10DE LOG #: N/A DATE: 10/21/96	
Requested by: J. PEDALINO				User / Agency: BECHTEL	
Date Molded: 09/23/96		Time Molded: 1136			
Date Received: 09/24/96		Time Stripped: PM			
Project: BIT CUTTER CAU 90-A		Area: 2			
Loc of Placement: INJECTION WELL - A		Quantity Represented (cu ft): Unknown			
Specimen Made by: J. AAMODT		Batch Plant Inspector: H. TUTHILL			
Mix #: HIGH STRENGTH GROUTCRETE (GYP)		Required Strength: 3000 (psi) @ 28 Days			

MATERIALS	BATCH WEIGHT	ADJUSTED MIX
Chem Comp II	0 lbs	N/A lbs
Type II	4570 lbs	N/A lbs
W - 60	170 lbs	N/A lbs
Fly Ash	2570.0 lbs	N/A lbs
A/1 Concrete Sand	10050 lbs	N/A oz
D - 19	57 lbs	N/A oz
Plastiment	1.7 gal.	N/A lbs
Water	6 Barrels	0 lbs/yd
Ice	1200 lbs	N/A lbs/ft3
Yield:	N/A	N/A

Weather: CLEAR					
Ambient Temp. (F): 78	Concrete Temp. (F): 59	Slump: N/A	% Air: N/A		
Equipment used: Dial Caliper, PTL # Y 4480	Calibration Date: 04/03/96	Calibration Date: 04/03/97			
METTLER PC16, Y8803	Calibration Date: 06/03/96	Calibration Date: 06/03/97			
Tested on Machine: FORNEY DOE# 158848	Calibration Date: 03/06/96	Calibration Date: 09/06/97			

Average	7 Day Strength	6505 psi	Average	14 Day Strength	7135 psi
Average	28 Day Strength	7365 psi	Average	56 Day Strength	N/A psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3269	7	09/30/96	3.16	3.00	2.99	3.00	7.05	44800	6360	Cone/Split	K. Olmstead
1	3270	7	09/30/96	3.10	2.99	2.99	2.99	7.02	45600	6490	Cone/Split	K. Olmstead
1	3271	7	09/30/96	3.11	3.00	2.99	3.00	7.05	47000	6670	Cone/Split	K. Olmstead
1	3272	14	10/07/96	3.13	2.99	2.99	2.99	7.02	47300	6740	Cone	T. High
1	3273	14	10/07/96	3.11	2.99	2.99	2.99	7.02	48800	6950	Cone	T. High
1	3274	14	10/07/96	3.14	2.99	3.01	3.00	7.07	54600	7720	Cone	T. High
1	3275	28	10/21/96	3.13	2.99	2.99	2.99	7.02	54600	7780	Cone	D. Herrington
1	3276	28	10/21/96	3.14	3.00	2.99	3.00	7.05	52700	7480	Cone	D. Herrington
1	3277	28	10/21/96	3.11	2.99	2.99	2.99	7.02	48000	6840	Cone	D. Herrington

REMARKS: WITHIN TOLERANCE SPECIFICATION	CC: E. MITCHELL BECHTEL J. PEDALINO BECHTEL D. JOHNSON BECHTEL A. OLSON BECHTEL MTL BECHTEL FILES
REVISED CC: ONLY 10/29/96 Checked by: <i>[Signature]</i>	Date: 10/21/96

Page 1 of 1

OCT 29 1996

CONCRETE CYLINDER COMPRESSION TESTS AS PER ASTM C 39-94		Bechtel Nevada MATERIALS TESTING LABORATORY P. O. BOX 98521, M/S NTS188 LAS VEGAS, NV 89193-8521		CHARGE #: C4UB10DE LOG. #: N/A DATE: 10/24/96						
Requested by: K. POWELL				User / Agency: BECHTEL						
Date Molded: 09/27/96 Date Received: 09/28/96 Project: BIT CUTTER Loc of Placement: INJECTION WELL CAPS WELL "C" Specimen Made by: D. VINCENT Mix #: 92A1-2A		Time Molded: Unknown Time Stripped: AM Area: 2 Quantity Represented (cu ft): 17 Batch Plant Inspector: N/A Required Strength: 3000 (psi) @ 28 Days								
MATERIALS		ORIGINAL MIX DESIGN		ADJUSTED MIX						
Cement Type: II		581 lbs		577 lbs						
Sand:		1424 lbs		1419 lbs						
Coarse Aggregate: 3/4"		1194 lbs		1194 lbs						
Water Pounds:		350.5 lbs		208.6 lbs						
Admixture: AIR		1.45 oz		1.50 oz						
Admixture: ICE		N/A		N/A lbs						
Admixture: Water Reducer 400N		N/A		N/A oz						
Total Weight of Materials:		3551 lbs/yd		3398 lbs/yd						
Unit Weight of Concrete:		N/A		N/A lbs/ft3						
Yield:		N/A		N/A						
Weather: CLEAR WARM										
Ambient Temp. (F): 65		Concrete Temp. (F): 74		Slump: 3" % Air: 3.25						
Equipment used: Dial Caliper, PTL # Y 4480		Calibration Date: 04/03/96		Calibration Date: 04/03/97						
METTLER PC16, Y8803		Calibration Date: 06/03/96		Calibration Date: 06/03/97						
Tested on Machine: FORNEY DOE# 158848		Calibration Date: 03/06/96		Calibration Date: 09/06/97						
Average 6 Day Strength		2760 psi		Average 14 Day Strength						
Average 27 Day Strength		4130 psi		N/A psi						
		Average 56 Day Strength		N/A psi						
Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)	X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
1	3294	6	10/03/96	25.63	6.00 6.00 6.00	28.27	78500	2780	Cone	K. Olmstead
1	3295	6	10/03/96	25.69	6.02 5.99 6.01	28.32	77500	2740	Cone	K. Olmstead
1	3296	27	10/24/96	25.60	6.02 6.01 6.02	28.42	115500	4060	Shear	D. Herrington
1	3297	27	10/24/96	25.68	6.03 6.01 6.02	28.46	118500	4160	Shear	D. Herrington
1	3298	27	10/24/96	25.61	6.02 6.01 6.02	28.42	118500	4170	Cone/Shear	D. Herrington
N/A	N/A	N/A	N/A	N/A	N/A N/A N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A N/A N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A N/A N/A	N/A	N/A	N/A	N/A	N/A
REMARKS: WITHIN REQUIRED SPECIFICATION										
REVISED CC: ONLY 10/29/96										
Checked by: <i>[Signature]</i> Date: 10/24/96 Page 1 of 1										

CC: **E. MITCHELL** **BECHTEL**
J. PEDALINO **BECHTEL**
D. JOHNSON **BECHTEL**
A. OLSON **BECHTEL**
MTL BECHTEL FILES

007 23 1996

CONCRETE CYLINDER.
COMPRESSION TESTS
AS PER ASTM C 39-94

Bechtel Nevada
MATERIALS TESTING LABORATORY
P. O. BOX 98521, M/S NTS188
LAS VEGAS, NV 89193-8521

CHARGE #: C4UB10DE
LOG #: N/A
DATE: 10/24/96

Requested by: J. PEDALINO

User / Agency: BECHTEL

Date Molded: 09/26/96
Date Received: 09/27/96
Project: BIT CUTTER CAU 90-C
Loc of Placement: INJECTION WELL - C
Specimen Made by: J. AAMODT
Mix #: DIPOLE HAIL HIGH STRENGTH GROUTCRETE (GYP)

Time Molded: 1800
Time Stripped: PM
Area: 2
Quantity Represented (cu yd): 6
Batch Plant Inspector: D. JOHNSON
Required Strength: 3000 (psi) @ 28 Days

MATERIALS	BATCH WEIGHT	ADJUSTED MIX
Chem Comp II	0 lbs	N/A lbs
Type II	4570 lbs	N/A lbs
W - 60	170 lbs	N/A lbs
Fly Ash	2570 lbs	N/A lbs
A/1 Concrete Sand	10050 lbs	N/A lbs
D - 19	57 lbs	N/A lbs
Plastiment	1.7 gal.	N/A gal.
Water	190 gal.	N/A gal.
Ice	1200 lbs	N/A lbs
Yield:	N/A	N/A

Weather: CLEAR

Ambient Temp. (F): 75 Concrete Temp. (F): 50 Slump: N/A % Air: N/A
Equipment used: Dial Caliper, PTL # Y 4480 Calibration Date: 04/03/96 Calibration Date: 04/03/97
METTLER PC16, Y8803 Calibration Date: 06/03/96 Calibration Date: 06/03/97
Tested on Machine: FORNEY DOE# 158848 Calibration Date: 03/06/96 Calibration Date: 09/06/97

Average 7 Day Strength 8360 psi Average 14 Day Strength 8330 psi
Average 28 Day Strength 8825 psi Average 56 Day Strength N/A psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3283	7	10/03/96	3.18	2.97	3.00	2.99	7.00	56000	8000	Cone/Split	K. Olmstead
1	3284	7	10/03/96	3.17	2.98	2.99	2.99	7.00	61000	8720	Cone/Split	K. Olmstead
1	3285	14	10/10/96	3.17	3.00	3.00	3.00	7.07	57800	8180	Cone/Split	T. High
1	3286	14	10/10/96	3.18	2.99	3.01	3.00	7.07	56800	8040	Cone/Split	T. High
1	3287	14	10/10/96	3.17	2.99	2.99	2.99	7.02	61600	8770	Cone/Split	T. High
1	3288	28	10/24/96	3.16	3.00	2.99	3.00	7.05	61000	8660	Cone	D. Herrington
1	3289	28	10/24/96	3.17	3.00	3.00	3.00	7.07	64200	9080	Cone	D. Herrington
1	3290	28	10/24/96	3.17	3.00	3.00	3.00	7.07	61800	8740	Shear	D. Herrington
1	3291	HOLD	09/26/96	3.17								

REVISED CC: ONLY 10/29/96

REMARKS

WITHIN REQUIRED SPECIFICATION

(3284 will be held for 56 days)

W.E.S DESIGN CYLINDERS CURED 140 DEGREES FAHRENHEIT + - 5 DEGREES AT 100% HUMIDITY FOR SIX DAYS THEN DEMOLDED AND PUT IN PLASTIC BAGS AND STORED IN A DRY PLACE AT ABOUT 75 DEGREES FAHRENHEIT UNTIL BREAK DATES.

CC: E. MITCHELL BECHTEL
J. PEDALINO BECHTEL
D. JOHNSON BECHTEL
A. OLSON BECHTEL
MTL BECHTEL FILES

Checked by: *J. Olmstead*

Date: 10/24/96

Page 1 of 1

OCT 29 1996

CONCRETE CYLINDER COMPRESSION TESTS AS PER ASTM C 39-94	Bechtel Nevada MATERIALS TESTING LABORATORY P. O. BOX 98521, M/S NTS188 LAS VEGAS, NV 89193-8521	CHARGE #: C4UB10DE LOG #: N/A DATE: 10/28/96 User / Agency: BECHTEL
Requested by: J. PEDALINO		
Date Molded: 09/24/96 Date Received: 09/25/96 Project: BIT CUTTER CAU 90 Loc of Placement: INJECTION WELLS Specimen Made by: K. POWELL Mix #: 92A1-2A	Time Molded: 1430 Time Stripped: PM Area: 2 Quantity Represented (cu ft): 4.5 Batch Plant Inspector: N/A Required Strength: 3000 (psi) @ 28 Days	

MATERIALS	ORIGINAL MIX DESIGN	ADJUSTED MIX
Cement Type: II	581 lbs	576 lbs
Sand:	1424 lbs	1422 lbs
Coarse Aggregate: 3/4"	1194 lbs	1178 lbs
Water Pounds:	350.5 lbs	207.7 lbs
Admixture: AIR	1.45 oz	1.33 oz
Admixture: ICE	N/A	N/A lbs
Admixture: Water Reducer 400N	N/A	N/A oz
Total Weight of Materials:	3551 lbs/yd	3383 lbs/yd
Unit Weight of Concrete:	N/A	N/A lbs/ft3
Yield:	N/A	N/A

Weather: CLEAR			
Ambient Temp. (F): 86	Concrete Temp. (F): 76	Slump: 4 1/2"	% Air: 4
Equipment used: Dial Caliper, PTL # Y 4480	Calibration Date: 04/03/96	Calibration Date: 04/03/97	
METTLER PC16, Y8803	Calibration Date: 06/03/96	Calibration Date: 06/03/97	
Tested on Machine: FORNEY DOE # 158848	Calibration Date: 03/06/96	Calibration Date: 09/06/97	

Average	7 Day Strength	3145 psi	Average	14 Day Strength	N/A	psi
Average	28 Day Strength	4135 psi	Average	56 Day Strength	N/A	psi

Truck Load #	Lab #	Test at Days	Date Tested	Cyl. Wt. (lb)	Cylinder Diameter (in)			X-Sect Area (sq in)	Total Load (lbs)	Comp. St. (psi)	Type of Frac.	Tested By
					1	2	Avg					
1	3278	7	10/01/96	25.97	6.04	5.98	6.01	28.37	87000	3070	Cone	T. High
1	3279	7	10/01/96	25.96	6.02	6.04	6.03	28.56	92000	3220	Cone	T. High
1	3280	28	10/22/96	26.00	6.02	6.03	6.03	28.51	119500	4190	Cone	D. Herrington
1	3281	28	10/22/96	26.02	6.01	6.01	6.01	28.37	125000	4410	Cone	D. Herrington
1	3282	28	10/22/96	25.96	6.02	6.01	6.02	28.42	108000	3800	Columnar	D. Herrington
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

REMARKS: WITHIN REQUIRED SPECIFICATION REVISUO (ONLY 10/29/96) REQUIRED STRENGTH REVISED 10/28/96 BY D. JOHNSON	CC: E. MITCHELL BECHTEL J. PEDALINO BECHTEL D. JOHNSON BECHTEL A. OLSON BECHTEL MTL BECHTEL FILES
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Checked by: <i>[Signature]</i>	Date: 10/23/96	Page 1 of 1
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APPENDIX I

POST-CLOSURE INSPECTION CHECKLIST

AREA 2, BITCUTTER & POSTSHOT INJECTION WELLS, POST-CLOSURE INSPECTION CHECKLIST

Date of Last Inspection:

Reason for Last Inspection:

Responsible Agency:

Project Manager:

Inspection Date:

Inspector (name, title, organization):

Assistant Inspector (name, title, organization):

A. GENERAL INSTRUCTIONS

1. All checklist items must be completed and detailed comments made to document the results of the site inspection. The completed checklist is part of the field record of the inspection. Additional pages should be used as necessary to ensure that a complete record is made. Attach the additional pages and number all pages upon completion of the inspection.
3. Any checklist line item marked by an inspector in a SHADED BOX, must be fully explained or an appropriate reference to previous reports provided. The purpose of this requirement is to provide a written explanation of inspector observations and the inspector's rationale for conclusions and recommendations. Explanations are to be placed on additional attachments and cross-referenced appropriately. Explanations, in addition to narrative, will take the form of sketches, measurements, annotated site maps.
4. The site inspection is a walking inspection of the entire site including the perimeter and sufficient transects to be able to inspect the entire surface and all features specifically described in this checklist.
5. A standard set of color 35mm photographs is required. In addition, all anomalous features or new features (such as changes in adjacent area land use) are to be photographed. A photo log entry will be made for each photograph taken.
6. This unit will be inspected biannually with formal reporting to the Nevada Division of Environmental Protection to be done annually. The annual report will include an executive summary, this inspection checklist with field notes and photo log attached, and recommendations and conclusions.

B. PREPARATION (To be completed prior to site visit)

YES

NO

EXPLANATION

1. Site as-built plans and site base map reviewed

2. Previous inspection reports reviewed

a. Were anomalies or trends detected on previous inspections?

b. Was maintenance performed?

3. Site maintenance and repair records reviewed

a. Has site repair resulted in a change from as-built conditions?

b. Are revised as-builts available that reflect repair changes?

C. SITE INSPECTION (To be completed during inspection)

YES

NO

EXPLANATION

1. Adjacent off-site features within watershed areas

a. Have there been any changes in use of adjacent area?

b. Are there any new roads or trails?

c. Has there been a change in the position of nearby washes?

d. Has there been lateral excursion or erosion/deposition of nearby washes?

e. Are there new drainage channels?

f. Change in surrounding vegetation?

2. Security fence, signs

a. Displacement of fences, site markers, boundary markers, or the construction?

b. Have any signs been damaged or removed?
(Number of signs replaced: _____)

c. Were gates locked?

3. Waste Unit covers

- [illegible]

a Has a photo log been prepared?

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[illegible]

Printed Name:

Unit.

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