INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY

Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 9 (MONTH) 7 (DAY) 19 85 Drill: 34 skidchill / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz. Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°	Quartz	NQ	~~340~~ 360	385			25	25		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	6		
Handling Rod (change bit)	1		
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation	1		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
Mud	5 GAL	EZ Mud			
GREASE	5 GAL	Rod Grease			
SALT	100#		2		
GUAR GUM	50 B				

OTHER

Water hauling ____ miles ____ loads
Core boxes: NQ size/ 3 no.
Length of waterline: ____
Lost tools: Description ____

Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	NQ	86168	366

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	W.R. MILLS	8		
B						
C						

Remarks: ____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 9 (MONTH) 6 (DAY) 1985 Drill: 34skiddrill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	-5°		NQ	324	360			36	35		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	6		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)	1		
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain) Moveing NQ Rods From Surface to DRILL STATION	1		
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ____ miles ____ loads
Core boxes: ~~RD~~ NQ size/ 3 no.
Length of waterline: ____
Lost tools: Description ____

Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth	
	NQ	L79335	324	
	NQ	L70707	324	Shell

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	W.R. MILLS	8		
B						
C						

Remarks: ____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 9 (MONTH) 5 (DAY) 1985 Drill: 34 skid drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R. Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°	Quartz Chert	HQ	312	324			12	12		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	5		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing	3		
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JR/G		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ____ miles ____ loads
Core boxes: HQ size/ 1 no.
Length of waterline: ____
Lost tools: Description ____

Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. Hayslip	8	W.R. Mills	8		
B						
C						

Remarks: Hauled in casing cased off to 324 changing over to NQ

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

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j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 9 (MONTH) 4 (DAY) 19 85 Drill 34 skid drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°	Quartz Chert	HQ	296	312			16	16		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	5		
Handling Rod (change bit)	3		
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Hooking up water	1		
Separator in air line			
Total Hours	9		
Driller's Initials	JR/G		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth	
	HQ	88365	311	OFF
	~~HQ~~	~~88366~~		
	HQ	87418	297	ON
	HQ	88366	307	ON

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	9	W.R. MILLS	9		
B						
C						

Remarks: Had to change bits twice and drill into bottom each time

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

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j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 9 (MONTH) 3 (DAY) 1935 Drill 34 skid drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	+5°	QUARTZ	HQ	284	296			12	12		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	4		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
WORKING ON AIR COMP.	3		
WATER IN AIR FREEZING UP AIR MOTOR	1		
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ____ miles ____ loads
Core boxes: 2 size/ HQ no.
Length of waterline: ____
Lost tools: Description ____

Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	JR. HAYSLIP	8	W.R. MILLS	8		
B						
C						

Remarks: ____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

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Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 30 (DAY) 1985 Drill 34 skid drill / 704 / (TYPE / DRILL NO. / TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°	QUARTZ	HQ	270	284			14	14		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	5 1/2		
Handling Rod (change bit)	1		
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud	8 30		
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JR/6		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	HQ	[illegible]	276
		L88265	

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	JR. HAYSLIP	8	W.R. MILLS	8		
B						
C						

Remarks: OD WAS 8" IN 19 MIN.

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 29 (DAY) 1985 Drill 34 skidrill / 704 / (TYPE / DRILL NO. / TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayes

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°	Quartz Very hard HIT void @ 262 2' wide	HQ	255	270			15	10		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	7		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)	1		
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Pulled Rods ONCE FOR BIT CHANGE AN ~~AGAIN~~ AGAIN TO GREASE Rods			
Total Hours	8		
Driller's Initials	JR/G		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ____ miles ____ loads
Core boxes: 1 size/ HQ no.
Length of waterline: ____
Lost tools: Description ____
17 17
Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	HQ	L83408	255

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYS II P	8	W.R. MILLS	8		
B						
C						

Remarks: 27

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.C. Date: 8 (MONTH) 28 (DAY) 1985 Drill 34 skid drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°	Quartz	HQ	238	255			17	17		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ____ miles ____ loads
Core boxes: 2 size/ HQ no.
Length of waterline: ____
Lost tools: Description ____

Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes:	Size	Serial #	Depth	
(Include first bit in hole)	HQ	L83407	238	ON
	HQ	L76241		OFF 38'

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	W.R. MILLS	8		
B						
C						

Remarks: ____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:**)
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U. G. Date: 8 (MONTH) 27 (DAY) 1985 Drill: 34 skid drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°	QUARTZ VERY HARD	HQ	224	238			14	14		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	7		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
WATER IN AIR AN	D		
INSTALLING WATER			
SEPERATOR			
Total Hours	9		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
	5 gal	Hyd. OIL			

OTHER

Water hauling ____ miles ____ loads
Core boxes: 1 size/ HQ no.
Length of waterline: ____
Lost tools: Description ____

Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	W.R. MILLS	8		
B						
C						

Remarks: EOH

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 26 (DAY) 1985 Drill 34 skiddrill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Core Recovered	Total Casing in Hole: Size	Footage
Day A	1104	15°	1104-1 Very hard Quartz	HQ	213	224			11	11		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

(Day / Aft. / Nite: Number of Units)

OTHER

Water hauling ____ miles ____ loads
Core boxes: 1 size/ HQ no. ____
Length of waterline: ____
Lost tools: Description ____
Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____
Bit changes: (Include first bit in hole) Size ____ Serial # ____ Depth ____

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	W.R. Mills	8		
B						
C						

Remarks: EJ

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

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Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 24 (DAY) 1985 Drill 34 stid drill / 704 / (TYPE / DRILL NO. / TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslp

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	15°		HQ	203	213			10	10		
			QUARTZ VERY HARD									
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ____ miles ____ loads
Core boxes: HQ size/ 1 no.
Length of waterline: ____
Lost tools: Description ____
Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	W.R. MILLS	8		
B						
C						

Remarks: OFF

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Bridge U.G. Date: 8 (MONTH) 23 (DAY) 1985 Drill: 34 skid drill / 704 / (TYPE / DRILL NO. / TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	~~H[illegible]~~ 1104-1	-5°		HQ	187	203			16	16		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	5		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain) Work on	3		
Hyd. System AM			
Put on NW Air gun			
valve			
Hyd. working good			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
1 SACK	50#	Doxtrid			

OTHER

Water hauling ____ miles ____ loads
Core boxes: 1 size/ HQ no.
Length of waterline: ____
Lost tools: Description ____

Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	HQ	L76341	200

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	JR. HAYSLIP	8	~~[illegible]~~			
B			W.R. Mills	8		
C						

Remarks:

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:**)
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Badger U.G. Date: 8 (MONTH) 22 (DAY) 1985 Drill: 34 skid drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz. Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	~~1140-1~~ 1104-1	-50		HQ	155	187			32	32		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#	Dextrid	1		
Mud	100#				
Other (Describe)					
	5 gal	EZ Mud	1		
	5				
	50	Gunk Gum	1		
	10 gal	Diesel Oil			

OTHER

Water hauling ____ miles ____ loads
Core boxes: 3 size/ HQ no.
Length of waterline: ____
Lost tools: Description ____
Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	~~[illegible]~~ W.R. MILLS	8		
B						
C						

Remarks: 704

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 21 (DAY) 1985 Drill: 340 skid drill (TYPE) / 704 (DRILL NO.) / 1 (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Core Recovered	Total Casing in Hole: Size	Footage
Day A	~~[illegible]~~1 1104-1	15°		HQ	135	155			20	19		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
OIL	5 gal	Rock drill oil			

OTHER

Water hauling ____ miles ____ loads
Core boxes: HQ size/ 2 no.
Length of waterline:
Lost tools: Description
Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft.
for Client ____ Hole # ____
Longco ____ Hole # ____
Bit changes: (Include first bit in hole) Size ____ Serial # ____ Depth ____

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	~~[illegible] Hayslip~~			
B			LARREY CARLE	8		
C						

Remarks: 677

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 20 (DAY) 19 85 Drill 34 skid drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature:

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1140-1	-5°	Hit void at 130' Lost water	HB	125	135			10	10		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	4		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Working on Hyd. System Still isn't working right	4		
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	[redacted]			
B	Larry Castle	8				
C						

Remarks:

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G Date: 8 (MONTH) 19 (DAY) 1985 Drill 34 skiddrill (TYPE) / 704 (DRILL NO.) / 1 (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary – Drilling From	Drilling To	Reaming From	Reaming To	Feet Drilled or Reamed	Core Recovered	Total Casing in Hole – Size	Footage
Day A	1140-1	45		HQ	103	125			22	22		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ____ miles ____ loads 16th 2 core boxes / 19th 3 boxes

Core boxes: 5 size/ ____ no. ____

Length of waterline: ____

Lost tools: Description ____

Lost bits: Size ____ Serial no. ____

Depth: ____ ft. Hole # ____

Casing lost or left in hole: Size ____ ft. ____

for Client ____ Hole # ____

Longco ____ Hole # ____

Bit changes: (Include first bit in hole) Size ____ Serial # ____ Depth ____

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	~~[illegible]~~			
B	Larry Carle	10				
C						

Remarks: Brooks Mng. furnished todays helper

Larry Carle 10 hrs. travel time from Butte to Jerome Ariz

JB

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 16 (DAY) 1985 Drill 34 Skid (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°		HQ	76	103			27	27		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____
_____
Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.K. HAYSLIP	8	P.J. HAYSLIP	8		
B						
C						

Remarks: _____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 15 (DAY) 1985 Drill 34 Diesel (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	45°		HQ	57	76			19	19		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	7		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain) Working on Hyd. System Hose Chuck Comes Back to Slow Still having Problems	1		
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ____ miles ____ loads
Core boxes: 2 size/ HQ no.
Length of waterline: ____
Lost tools: Description ____

Lost bits: Size ____ Serial no. ____
Depth: ____ ft. Hole # ____
Casing lost or left in hole: Size ____ ft. ____
for Client ____ Hole # ____
Longco ____ Hole # ____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	P.J. HAYSLIP	8		
B						
C						

Remarks: Off

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 14 (DAY) 1985 Drill: 34 skid drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack B Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	1104-1	+5°		HQ	30	57			27	27		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
Core Boxes	3	HQ			

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	P.J. HAYSLIP	8		
B						
C						

Remarks: _____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 13 (DAY) 1985 Drill: skid 34 drill (TYPE) / 704 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary – Drilling From	Drilling To	Reaming From	Reaming To	Feet Drilled or Reamed	Core Recovered	Total Casing in Hole Size	Footage
Day A	1104 +5°			HQ	4	30				26		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	7		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down	(1)		
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
Gicrbeith	5 Gal				
1EX Mud	5 Gal				
Core Boxes	3				

OTHER

Water hauling ___ miles ___ loads

Core boxes: ___ size/ ___ no.

Length of waterline: ___

Lost tools: Description ___

Lost bits: Size ___ Serial no. ___

Depth: ___ ft. Hole # ___

Casing lost or left in hole: Size ___ ft.

for Client ___ Hole # ___

Longco ___ Hole # ___

Bit changes: (Include first bit in hole) Size ___ Serial # ___ Depth ___

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	P.J. HAYSLIP	8		
B						
C						

Remarks: (R+Rn) 60 ft of 4" exhaust Pipe Line.

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.G. Date: 8 (MONTH) 12 (DAY) 1985 Drill: 34 skid drill / (TYPE) 704 / (DRILL NO.) ____ (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary – Drilling From	Drilling To	Reaming From	Reaming To	Feet – Drilled or Reamed	Core Recovered	Total Casing in Hole – Size	Footage
Day A	1104-1	45°		PQ	0	1						
				HQ	1	4			3	3		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	2		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.	(3)		
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down	(3)		
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
OIL	5 gal	Rock drill			
OIL	5 gal	90 W.			
OIL	5 gal	30 W			

OTHER

Water hauling ____ miles ____ loads

Core boxes: ____ size/ ____ no.

Length of waterline: ____

Lost tools: Description ____

Lost bits: Size ____ Serial no. ____

Depth: ____ ft. Hole # ____

Casing lost or left in hole: Size ____ ft. ____

for Client ____ Hole # ____

Longco ____ Hole # ____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth	
	HQ	L76158	1	Bit
	HQ	6HQP8713	1	Shell

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	P.J. HAYSLIP	8		
B						
C						

Remarks: Couldn't go down until 10:00 AM because we had to wait for Mining inspector to check the air quality at drill site

[illegible]

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY

Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Bridge U.G. Date: 8 (MONTH) 9 (DAY) 1985 Drill 34 (TYPE) / (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack B Haysip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A												
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down	7		
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)	1		
Down for Sad Air			
Total Hours			
Driller's Initials	JBH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____
_____
Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes:	Size	Serial #	Depth
(Include first bit in hole)			

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSIP	8	P.J. HAYSIP	8		
B						
C						

Remarks: BMI per JB

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Bldge 46. Date: 8 (MONTH) 8 (DAY) 1985 Drill 34 (TYPE) / 1 (DRILL NO.) / 1 (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Core Recovered	Total Casing in Hole: Size	Footage
Day A												
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down	(8)		
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling miles loads

Core boxes: size/ no.

Length of waterline:

Lost tools: Description

Lost bits: Size Serial no.

Depth: ft. Hole #

Casing lost or left in hole: Size ft.

for Client Hole #

Longco Hole #

Bit changes: (Include first bit in hole) Size Serial # Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J. R. HAYSLIP	8	P. J. HAYSLIP	8		
B						
C						

Remarks: assembled machine at drill site
started blocking down

BMH per BMI

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY

Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge U.S. Date: 8 (MONTH) 7 (DAY) 1985 Drill 34 (TYPE) / 1 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Ariz Foreman's Signature: Jack R Hayslip

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A												
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up / Rigging Down	(8)		
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JRH		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft.
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	J.R. HAYSLIP	8	P.J. HAYSLIP	8		
B						
C						

Remarks: built drill platform on 11 level
disassembled drill, started to tram the shaft to drill stations

BMI per [signature]

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

INSTRUCTIONS

a. **CORE DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, mislatch, stuck tube, etc. This will also include last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

Overburden-Rock Bit: Show the time spent drilling through the overburden with a rock bit and employing a diamond core drill.

b. **ROTARY DRILLING:** Show all time actually spent in drilling activity except time spent handling rods and changing bit.

Handling Rods: Show time spent in tripping rods for bit change, stuck tube, etc. This will also include the last trip out of hole upon completion.

Bit Change: Show time spent in changing bit. This time shall include the time spent in handling the rods to effect the bit change.

c. **Reaming:** Show size of hole such as "B to N", etc. Time shown should include actual reaming time plus rod handling time in and out of the hole before and after reaming.

d. **Casing:** Show time spent placing or pulling casing. List size of casing and total footage involved in box located in upper right corner.

e. **Delays—Client Acct.:** Delays incurred as result of suspension of activity caused directly or indirectly by client should be properly recorded in this category as well as fully explained in remarks section. Delays for Longyear Acct. should be reported and explained under remarks section.

f. **Cementing Activity:** Time spent performing this activity should be properly listed in appropriate category.

g. **Moving:** This covers time spent when moving between holes or area to area. If unusual, explain operation more completely under remarks section at bottom of report. Include length of move.

h. **Rigging Up/Down:** Time spent rigging up will start when the equipment is at the drill site and will continue until drilling operations are ready to start. Rigging down time will start when the rods and/or casing are out of the hole and will continue until the rig and equipment are ready to move.

i. **Mix Mud, etc.:** Time should be shown against this item only when the rig is not operating. If the runner is drilling and the helper is mixing mud, no time should be shown. However, if it is necessary to shut the rig down while mud or additives are being prepared, then time should be listed. Be sure to list quantities consumed in supplies consumed section.

j. **Conditioning Hole:** Time should be listed in this category when operation is being performed solely for the purpose of stabilizing the drill hole or attempting to eliminate lost circulation condition.

k. **Surveying, Inclination Test:** Time spent surveying hole shall be shown. This shall include handling rods.

l. **Mobilization and Demobilization:** List time spent hauling equipment to area and unloading at site. For demobilizing, list time spent loading at site and transporting back to storage. Do Not confuse with rigging operations listed under "f" above.

m. **Other (Explain):** List time spent performing activity not listed in Hourly Distribution column. Explain in detail.

n. **Supplies consumed:)**
Other:) List appropriately.

o. Time listed in the hourly distribution column must equal the total hours listed for wage payment.

THE FEW MINUTES YOU SPEND TO ACCURATELY RECORD YOUR SHIFTS ACTIVITY IS A VITAL AND REQUIRED FUNCTION OF YOUR JOB.

LIST ACCURATELY – LIST NEATLY – LIST LEGIBLY!

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT

Contract: Budge #2 Date: 9-11 (MONTH DAY) 1985 Drill LM37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Arizona Foreman's Signature: [illegible]

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary – Drilling From	Drilling To	Reaming From	Reaming To	Feet Drilled or Reamed	Core Recovered	Total Casing in Hole – Size	Footage
Day A												
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization	5		
Other (Explain) equip	3		
Total Hours	8		
Driller's Initials	JLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

(Day / Aft. / Nite columns: Number of Units)

OTHER

Water hauling ______ miles ______ loads

Core boxes: ______ size/ ______ no.

Length of waterline: ______

Lost tools: Description ______

Lost bits: Size ______ Serial no. ______

Depth: ______ ft. Hole # ______

Casing lost or left in hole: Size ______ ft. ______

for Client ______ Hole # ______

Longco ______ Hole # ______

Bit changes: (Include first bit in hole) Size Serial # Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	J.L. Schroeder	8	T. Fisher	8		
B						
C						

Remarks: unloaded equip checked out station - mine not ready for drill worked on equip-

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budge #2 Date: 9 (MONTH) – 12 (DAY) 19 25 Drill: LM37 (TYPE) 1006 (DRILL NO.) 1 (TRUCK NO.)

Location: Jerome, Arizona Foreman's Signature: Jerry Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A												
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - ~~Hole to Hole~~ Into Mine	(8)		
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	(8)		
Driller's Initials	JLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	J.L. Schroeder	8	T.H. Fisher	8	K. McCabe	8
B						
C						

Remarks: Moved equip Into Mine

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge #2 Date: 9-13 (MONTH DAY) 19 85 Drill LM37 (TYPE) 1006 (DRILL NO.) 1 (TRUCK NO.)

Location: Jerome, Arizona Foreman's Signature: Jerry Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A												
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole	(8)	(5) 1 Mad	
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8	5	
Driller's Initials	JLS	TF	

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	J.L. Schroeder	8	K. McCabe	8		
B	T. Fisher	5				
C						

Remarks: No Electricity

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budget #2 Date: 9- 14 1985 Drill LM37 1006 1
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jerome, Arizona Foreman's Signature: Jerry Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary				Feet		Total Casing in Hole	
					Drilling		Reaming		Drilled or Reamed	Core Recovered	Size	Footage
					From	To	From	To				
Day A												
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Electric	(3)		
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down	(3)		
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain) Maint	2		
Total Hours	8		
Driller's Initials	JLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____
_____
Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	J.L. Schroeder	8				
B						
C						

Remarks: Help string electric cable — worked on set up
Checked equip 1 man Hr

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT

Contract: Budge #2 Date: 9-16 (MONTH DAY) 1985 Drill LM37 (TYPE) 1006 (DRILL NO.) 1 (TRUCK NO.)

Location: Jerome, Arizona Foreman's Signature: Jerry Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Core Recovered	Total Casing in Hole: Size	Footage
Day A				NQWL	0	5			5	5		
	901-1	+11°		NQWL	5	10			5	5		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	2		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Electric	(4)		
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
(Rigging Up) Rigging Down	(2)		
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain) Travel	2		
Total Hours	8		
Driller's Initials	JLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe) [scribbled out]					

OTHER

Water hauling ___ miles ___ loads

Core boxes: ___ size/ ___ no.

Length of waterline:

Lost tools: Description

Lost bits: Size ___ Serial no. ___

Depth: ___ ft. Hole # ___

Casing lost or left in hole: Size ___ ft. ___

for Client ___ Hole # ___

Longco ___ Hole # ___

Bit changes: (Include first bit in hole) Size	Serial #	Depth
NQRS	90693	5
NQWL	L90383	5

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	T. Fisher	10	J.C. Rosenberg	8		
B	J.L. Schroeder	8				
C						

Remarks:

T. Fisher Travel 2hrs

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge #2 Date: 9 (MONTH) 17 (DAY) 19 85 Drill LM37 (TYPE) 1006 (DRILL NO.) 1 (TRUCK NO.)

Location: Tucson, Arizona Foreman's Signature: [signature]

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	901-1	-11°		NQWL	10	95			85	85		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ mud	5gal	Baroid	1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	J.L. Schroeder	8	J.C. Rosenberg	8		
B						
C						

Remarks: _____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT

Contract: Budge #2 Date: 9-18 19 85 Drill Lm37 1006 1
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jerome, Arizona Foreman's Signature: Jerry Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	90H1	+11°		NQWL	95	130			35	35		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	5		
Handling Rod (change bit)	1		
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain) Repair	2		
Total Hours	8		
Driller's Initials	JLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ mud	1gal	Boroid	1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____
_____
_____
Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	J.C. Schroeder	8	J.C. Raspberg	8		
B						
C	P.L. Schroeder	6				

Remarks: _____

Loading, MT to SLC Utah

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budget #2 Date: 9-19 (MONTH DAY) 1985 Drill LM37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: Jerome, Arizona Foreman's Signature: Jerry Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary				Feet		Total Casing in Hole	
					Drilling		Reaming		Drilled or Reamed	Core Recovered	Size	Footage
					From	To	From	To				
Day A	901-1	11°		WOWL	130	175			45	45		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	6		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain) Repair Hyd chuck	2		
Total Hours	8		
Driller's Initials	JLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ mud	3gal	Baroid	1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	J. L. Schroeder	8	J. C. Rosenberg	8		
B						
C	P. L. Schroeder	13				

Remarks:

Salt Lake City to Flagstaff 13 hrs
3 hr. SIC Shop

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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"DAILY DRILL REPORT

Contract: Budge #2 Date: 9-20 (MONTH DAY) 1985 Drill: Lm 37 (TYPE) / 006 (DRILL NO.) / 1 (TRUCK NO.)

Location: Frone, Arizona Foreman's Signature: Jerry Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Core Recovered	Total Casing in Hole: Size	Footage
Day A	901-1	+11°		NQWL	175	218			43	43		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	7		
Handling Rod (change bit)	1		
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	JLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
Ez-mud	5gal	Baroid	1		

OTHER

Water hauling ____ miles ____ loads

Core boxes: ____ size/ ____ no.

Length of waterline: ____

Lost tools: Description ____

Lost bits: Size ____ Serial no. ____

Depth: ____ ft. Hole # ____

Casing lost or left in hole: Size ____ ft. ____

for Client ____ Hole # ____

Longco ____ Hole # ____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	NQWL	L8895D	at 218'

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	J.L. Schroeder	8	J.C. Rosenberg	8		
B						
C	J.L. Schroeder	8				

Remarks:

C - Drove Co PU from Flagstaff to Poway — Shop to Job 8hrs

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge #2 Date: 9-21 (MONTH DAY) 1985 Drill LM37 (TYPE) 1006 (DRILL NO.) 1 (TRUCK NO.)

Location: Jerome, Arizona Foreman's Signature: Jay Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary				Feet		Total Casing in Hole	
					Drilling		Reaming		Drilled or Reamed	Core Recovered	Size	Footage
					From	To	From	To				
Day A	901-1	-11°		NQWL	218	259			41	41		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	8		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
E-Z Mud	5gal	Baroid	1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	J.C. Rosenberg	8		
B						
C						

Remarks: _____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT

Contract: Budge #2 Date: 9 - 23 (MONTH / DAY) 1985 Drill LM37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: Jerome Foreman's Signature: P.L. Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary – Drilling From	Drilling To	Reaming From	Reaming To	Feet – Drilled or Reamed	Core Recovered	Total Casing in Hole – Size	Footage
Day A	901-1	+11°		NQWL	259	285			26	22		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	5		
Handling Rod (change bit) grease	2		
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Shipe Rods	(1)		
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ mud	5 gal		1		

(Day / Aft. / Nite: Number of Units)

OTHER

Water hauling ______ miles ______ loads

Core boxes: ______ size/ ______ no.

Length of waterline: ______

Lost tools: Description ______

Lost bits: Size ______ Serial no. ______

Depth: ______ ft. Hole # ______

Casing lost or left in hole: Size ______ ft. ______

for Client ______ Hole # ______

Longco ______ Hole # ______

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	NQWL	L88714	259'

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: Took 5' rods off and put on 220' 10' rods (PLS)

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge #2 Date: 9-24 (MONTH DAY) 1985 Drill: LM37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: Ironton Foreman's Signature: P. L. Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	701-1	+11°		NQWL	285	313			28	29		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	6		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation	(2)		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ Mud 5 gal			1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P. L. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: Condition Hole, grease & rod (all)

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge #2 Date: 9-25 19 85 (MONTH / DAY) Drill: LM 37 (TYPE) / 1006 (DRILL NO.) / (TRUCK NO.)

Location: Jerome Foreman's Signature: Pat J Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	701-1	+11°		NRW2	313	329			16	13		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	3		
Handling Rod (change bit)	1		
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole Lost Circulation	(4)		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	RD		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ Mud	5 gal		1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth
[illegible]		

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	J. Rosenbury	8		
B						
C						

Remarks: Conditioning; greasing Rods and Redrilling Between 328 To 329

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT

Contract: Budge #2 Date: 9 - 26 1985 Drill LM37 1006 1
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jerome Foreman's Signature: [signature]

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary Drilling From	Drilling To	Reaming From	Reaming To	Feet Drilled or Reamed	Core Recovered	Total Casing in Hole Size	Footage
Day A	901-1	+11°		NQWL	329	331			2	3		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	2		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
~~Mix Mud~~			
Condition Hole/ Lost Circulation	(5)		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
wireLine	1		
Total Hours	8		
Driller's Initials	[initials]		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ Mud	1 gal		1		

OTHER

Water hauling ______ miles ______ loads
Core boxes: ______ size/ ______ no.
Length of waterline: ______
Lost tools: Description ______

Lost bits: Size ______ Serial no. ______
Depth: ______ ft. Hole # ______
Casing lost or left in hole: Size ______ ft. ______
for Client ______ Hole # ______
Longco ______ Hole # ______

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	NQWL	L90693	330

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P. L. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: Conditioning: greeseing Rods & redrilling from 328 To 331. Have Pulled out 3 ft. of gravel for 3 ft of Hole

[signature]

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT

Contract: Budge #2 Date: 9 - 27 1985 Drill LM37 1006 1
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jerome Foreman's Signature: Paul Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary				Feet		Total Casing in Hole	
					Drilling		Reaming		Drilled or	Core Re-		
					From	To	From	To	Reamed	covered	Size	Footage
Day A	901-1	+11°		NQW2	331	332			1	2		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	2		
Handling Rod (change bit)	1		
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole/Lost Circulation	(5)		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____
_____
_____
Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	[redacted]		

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: Trying To get Through FaLT before Cementing Hole, cannot do

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budge #2 Date: 9 - 28 1985 Drill LM37 / 006 /
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jerome Foreman's Signature: Pat L Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary				Feet		Total Casing in Hole	
					Drilling		Reaming		Drilled or Reamed	Core Recovered	Size	Footage
					From	To	From	To				
Day A	90-1	+11°		NQWL								
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Lost Remarks	8		
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____
_____
_____
Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: Went To ~~Boise~~ Phoenix To find packer, had To get one from Spokane by 6p 5:50 That night. Serviced pickup and picked up other parts for cementing an up Hole.

J. Rosenburg worked at mine, Took 320 ft BQ rods To The drill & got them ready To go in Monday morning

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge #2 Date: 9 - 30 19 55 (MONTH / DAY) Drill: LM 37 / 006 / 1 (TYPE / DRILL NO. / TRUCK NO.)

Location: Jerome Foreman's Signature: Pat L. Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	901-1	-11°				337						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing – Placing			
– Pulling			
Delays - Client Acct.			
Cementing - Handling Rods	(1)		
- Prep Hole & Grout	(3)		
- Setting	(4)		
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	P.L.S.		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
packer	NQWL		1		
LP 500	100#		10		

OTHER

Water hauling _____ miles _____ loads

Core boxes: _____ size/ _____ no.

Length of waterline: _____

Lost tools: Description _____

Lost bits: Size _____ Serial no. _____

Depth: _____ ft. Hole # _____

Casing lost or left in hole: Size _____ ft. _____

for Client _____ Hole # _____

Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: _____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Bridge #2 Date: 10 - 1 19 85 Drill LM 37 / 0061 /
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jerome Foreman's Signature: P.L. Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary				Feet		Total Casing in Hole	
					Drilling		Reaming		Drilled or Reamed	Core Recovered	Size	Footage
					From	To	From	To				
Day A	901-1	-11°				332						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods	(1)		
- Prep Hole & Grout			
- Setting			
packer - Drilling	(3)		
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
went To Phenix	4		
Total Hours	8		
Driller's Initials	P.L.S.		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____
_____
_____
Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	J. Rosenburg	4		
B						
C						

Remarks: Packer Turning In hole went To Phenix To get another packer
(Cement went out into formation)

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budge #2 Date: 10 (MONTH) - 2 (DAY) 19 82 Drill LM-37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: Jerome Foreman's Signature: Ron Schwab

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	901-1	-11°		NQWL		332						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods	(1)		
- Prep Hole & Grout	(3)		
- Setting	(4)		
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	RDS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
packer	NQWL		1		
LP-500	100 #		7		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	R. Schwab	8	J. Rosenberg	8		
B						
C						

Remarks: Put 2nd packer in, this time I got presure

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT

Contract: Budge #2 Date: 10 - 3 1985 Drill LM-37 / 006 / 1
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jerome Foreman's Signature: [signature]

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Drilling From	Drilling To	Reaming From	Reaming To	Feet Drilled or Reamed	Core Recovered	Total Casing in Hole Size	Total Casing in Hole Footage
Day A	901-1	11°		[illegible]		332						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
packer - Drilling	(8)		
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
	8		
Total Hours	8		
Driller's Initials	[initials]		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ______ miles ______ loads
Core boxes: ______ size/ ______ no.
Length of waterline: ______
Lost tools: Description ______

Lost bits: Size ______ Serial no. ______
Depth: ______ ft. Hole # ______
Casing lost or left in hole: Size ______ ft. ______
for Client ______ Hole # ______
Longco ______ Hole # ______

Bit changes: (Include first bit in hole) Size Serial # Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	RL. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: Drilling packer at 307, packer was bogging rig down and stopping rods pulled out and cut teeth in 5 FT. rod, it went Through packer a lot Better

[signature]

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

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Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge #2 Date: 10 - 4 (MONTH - DAY) 19 85 Drill LM-37 (TYPE) 1006 (DRILL NO.) 1 (TRUCK NO.)

Location: Jerome Foreman's Signature: Pat L. Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	901-1	-11°		NQWL		332						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling	(8)		
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	PLS.		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ mud	5gal		1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____
Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	Pat. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: redrilling 2nd packer pieces of in were binding rods in hole
Drilled cemrT from 307' To 1st packer 329.5'

NOTE: If item is chargeable to client, ~~place~~ circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge II Date: 10 (MONTH) · 5 (DAY) 19 8 Drill LM-37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: Jerome Foreman's Signature: Pat S Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	901-1	-11°		NQWL		332						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
packer - Drilling	(8)		
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	P.D.S.		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ mud 5gal			1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	J. Rosenberg	8		
B						
C						

Remarks: pulled rods 5 times to clean bit. got through packer to bottom of hole. hole is clean!

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budge #2 Date: 10 - 7 19 75 Drill LM-37 / 006 /
(MONTH / DAY / TYPE / DRILL NO. / TRUCK NO.)

Location: Jerome Foreman's Signature: Paul Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footag
Day A	901-1	-11°										
				NQWL	332	334			2	2		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	3		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation	(3)		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
went to mayer for Casing	2		
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
EZ mud	5gal		1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	NQWL		332

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	P.L. Schroeder	8	J. Rosenburg	6		
B						
C						

Remarks: Had 1 foot of gravel & 1 ft of good rock, (Conditioning Hole) redrill 1 ft of cave, But it keep caving in on Rod and stoping the core Turning.

PS

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY

Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Bulge #2 Date: 10 (MONTH) - 8 (DAY) 19 75 Drill LM-37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: Towner Foreman's Signature: Pat Lund

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary				Feet		Total Casing in Hole	
					Drilling		Reaming		Drilled or Reamed	Core Recovered	Size	Footag
					From	To	From	To				
Day A	901-1	-11°			324							
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (329 to 334)	(2)		
Casing – Placing	(5)		
– Pulling			
Delays - Client Acct.			
reducer	(2)		
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Shipping rods	(2)		
Total Hours	8		
Driller's Initials	RLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	R. L. Schneider	8	J. Rosenberg	8		
B						
C						

Remarks: _____

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Ridge #2 Date: 10 - 9 - 1985 Drill LM-37 / 1006 / (MONTH DAY TYPE DRILL NO. TRUCK NO.)

Location: Jerome Foreman's Signature: [signature]

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary Drilling From	Drilling To	Reaming From	Reaming To	Feet Drilled or Reamed	Core Recovered	Total Casing in Hole Size	Footage
Day A	901-1	11°		BQWL	334	341			7	7		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	4		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation	(2)		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
working on pumping equipment	2		
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ______ miles ______ loads
Core boxes: ______ size/ ______ no.
Length of waterline:
Lost tools: Description

Lost bits: Size ______ Serial no.
Depth: ______ ft. Hole #
Casing lost or left in hole: Size ______ ft.
for Client ______ Hole #
Longco ______ Hole #

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	BQWL	L84774	334

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	8	T. Rosenberg	8		
B						
C						

Remarks: pumped grease into hole to hold core

177

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CRC ☐ OFFICE SUPPLY DIST., INC.—MINNEAPOLIS, MINN. 55402

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT

Contract: Budge #2 Date: 10-10 (MONTH / DAY) 198[illegible] Drill LM-37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: [illegible] Foreman's Signature: [illegible]

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary – Drilling From	Drilling To	Reaming From	Reaming To	Feet – Drilled or Reamed	Core Recovered	Total Casing in Hole – Size	Footage
Day A	9W-1	-11°		BQWL	341	351			10	10		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	4		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation	(4)		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours			
Driller's Initials			

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ______ miles ______ loads

Core boxes: ______ size/ ______ no.

Length of waterline: ______

Lost tools: Description ______

Lost bits: Size ______ Serial no. ______

Depth: ______ ft. Hole # ______

Casing lost or left in hole: Size ______ ft. ______

for Client ______ Hole # ______

Longco ______ Hole # ______

Bit changes: (Include first bit in hole)	Size	Serial #	Depth
	BQWL	1791[illegible]	350

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	P.L. Schroeder	8	J. Rosenburg	8		
B						
C						

Remarks: Had to redrill to bottom every run

677

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CRC ☐ OFFICE SUPPLY DIST., INC.—MINNEAPOLIS, MINN. 55402

CLIENT

LONGYEAR COMPANY

Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budge #2 Date: 10 (MONTH) - 11 (DAY) 19 85 Drill LM-37 (TYPE) 1006 (DRILL NO.) 1 (TRUCK NO.)

Location: Jerome Foreman's Signature: P.L. Schwab

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A				BW-44	251	355			4	4		
	901-1	-11°										
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	3		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation	4		
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Setting up BW-44 Swivel	1		
Total Hours	8		
Driller's Initials	PL		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
FZ mud	5gl		1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth
BW-44	L-6441	351

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schwab	8	J. Rosenberg	8		
B						
C						

Remarks: Hole caved in at 352' never did get back to bottom after 4 runs

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Badue #2 Date: 10 - 12 19 85 Drill LM-37 / 006 /
MONTH / DAY / TYPE / DRILL NO. / TRUCK NO.

Location: Jerome Foreman's Signature: [signature]

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary Drilling From	Drilling To	Reaming From	Reaming To	Feet Drilled or Reamed	Core Re-covered	Total Casing in Hole Size	Footag
Day A		41°										
	901-1			BW44		335						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods	(1)		
- Prep Hole & Grout	(2)		
- Setting	(2)		
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Driving for Supplies	3		
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
Calseal	100#	1,500	3		
BQ packer			1		

OTHER

Water hauling ______ miles ______ loads
Core boxes: ______ size/ ______ no.
Length of waterline: ______
Lost tools: Description ______

Lost bits: Size ______ Serial no. ______
Depth: ______ ft. Hole # ______
Casing lost or left in hole: Size ______ ft. ______
for Client ______ Hole # ______
Longco ______ Hole # ______
Bit changes: (Include first bit in hole) Size Serial # Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P. L. Schroeder	8	J. Rosenberg	5		
B						
C						

Remarks: 677.

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CRC ☐ OFFICE SUPPLY DIST., INC.—MINNEAPOLIS, MINN. 55402

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budget #2 Date: 10 - 14 19 85 Drill LM 37 1006 1
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jewett Foreman's Signature: Dan Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary				Feet		Total Casing in Hole	
					Drilling		Reaming		Drilled or Reamed	Core Recovered	Size	Footage
					From	To	From	To				
Day A	901-1	-11°		BW49		355						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods	(2)		
- Prep Hole & Grout	(3)		
- Setting			
- Drilling packer	(1)		
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
CMA Driller's Initials	RS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
LP-500	110#	Calseal	#6		
60 packer			1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	RL Schroeder	8	T Rosenberg	8		
B						
C						

Remarks: very little cement in Hole, Hole Still caving

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budge #2 Date: 10 - 15 (MONTH DAY) 1985 Drill LM-37 (TYPE) / 1006 (DRILL NO.) / (TRUCK NO.)

Location: Serene Foreman's Signature: [signature]

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary Drilling From	Drilling To	Reaming From	Reaming To	Feet Drilled or Reamed	Core Recovered	Total Casing in Hole Size	Footage
Day A				RW44		355						
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods	(1)		
- Prep Hole & Grout	(1)		
- Setting			
- Drilling pick up	(4)		
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
equipment repair	2		
Total Hours	8		
Driller's Initials	PJS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ______ miles ______ loads
Core boxes: ______ size/ ______ no.
Length of waterline:
Lost tools: Description

Lost bits: Size ______ Serial no.
Depth: ______ ft. Hole #
Casing lost or left in hole: Size ______ ft.
for Client ______ Hole #
Longco ______ Hole #
Bit changes: (Include first bit in hole) Size Serial # Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	P. J. Schmidt	8	J. Rosenberg	8		
B						
C						

Remarks: Very little cement in Hole, no solid cement core

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPORT"

Contract: Budge F2 Date: 10 (MONTH) - 16 (DAY) 19 85 Drill LM-37 (TYPE) 1006 (DRILL NO.) / (TRUCK NO.)

Location: Serene Foreman's Signature: Pat T. Schneider

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A												
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting			
- Drilling packer	(4)		
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Maintenance	4		
Total Hours	8		
Driller's Initials	DSD		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schneider	8	J. Rosenbaum	8		
B						
C						

Remarks: Maintenance - Changed gears in Head

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: Budge #2 Date: 10 - 17 19 85 Drill LM-37 / 006 /
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Jerome Foreman's Signature: Paul Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footage
Day A	901-1	-11°		BW-44	355	356			1	1		
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling	1		
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (346 to 355)	(4)		
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout	(6)		
- Setting			
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	11		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland	94#		13		
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					
BQWL		packer	1		

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)

Size	Serial #	Depth
BW-44		

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P.L. Schroeder	11	J. Rosenberry	11		
B						
C						

Remarks: Reamed To bottom 4 Times

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: ~~Budg~~ Budget 2 Date: 10 - 18 1985 Drill LM-37 / 006 /
MONTH DAY TYPE DRILL NO. TRUCK NO.

Location: Soccne Foreman's Signature: Rob L. Schroeder

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Core Re-covered	Total Casing in Hole: Size	Footag
Day A												
	901-1	11°		Rowl								
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting	(8)		
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	(8)		
Driller's Initials	RLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling ______ miles ______ loads
Core boxes: ______ size/ ______ no.
Length of waterline: ______
Lost tools: Description ______

Lost bits: Size ______ Serial no. ______
Depth: ______ ft. Hole # ______
Casing lost or left in hole: Size ______ ft. ______
for Client ______ Hole # ______
Longco ______ Hole # ______
Bit changes: (Include first bit in hole) Size Serial # Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs
A	P. L. Schroeder	8	J. Rosenberg	8		
B						
C						

Remarks: 77 / 6

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CRC ☐ OFFICE SUPPLY DIST., INC.—MINNEAPOLIS, MINN. 55402

CLIENT

LONGYEAR COMPANY
Contracting Division
General Office
Minneapolis, Minnesota 55414

"DAILY DRILL REPOR

Contract: [redacted] Budge #2 Date: 10 (MONTH) - 19 (DAY) 19 85 Drill LM 37 (TYPE) / 006 (DRILL NO.) / (TRUCK NO.)

Location: Jerome Foreman's Signature: Paul Schmidt

Shift	Hole No.	Angle	Material Drilled	Bit Size & Type	Footage Summary: Drilling From	Drilling To	Reaming From	Reaming To	Feet: Drilled or Reamed	Feet: Core Recovered	Total Casing in Hole: Size	Total Casing in Hole: Footag
Day A	901-1	-11°										
Aft B												
Nite C												

Hourly Distribution	Day	Aft.	Nite
Core Drilling			
Handling Rod (change bit)			
Overburden - rock bit			
Collaring Hole - Dia. bit			
Rotary Drilling			
Handling Rod (bit)			
Rock Bit - Overburden			
Reaming (to)			
Casing — Placing			
— Pulling			
Delays - Client Acct.			
Cement Testing	(4)		
Cementing - Handling Rods			
- Prep Hole & Grout			
- Setting	(4)		
- Drilling			
Moving - Hole to Hole			
Rigging Up - Rigging Down			
Mix Mud			
Condition Hole, Lost Circulation			
Surveying, Inclination Test			
Mobilization/Demobilization			
Other (Explain)			
Total Hours	8		
Driller's Initials	PLS		

Supplies Consumed

Description	Size	Product Name	Day	Aft.	Nite
			Number of Units		
Portland					
Lumnite					
Calseal					
Mud	50#				
Mud	100#				
Other (Describe)					

OTHER

Water hauling _____ miles _____ loads
Core boxes: _____ size/ _____ no.
Length of waterline: _____
Lost tools: Description _____

Lost bits: Size _____ Serial no. _____
Depth: _____ ft. Hole # _____
Casing lost or left in hole: Size _____ ft. _____
for Client _____ Hole # _____
Longco _____ Hole # _____

Bit changes: (Include first bit in hole)	Size	Serial #	Depth

Shift	DRILLERS	Hrs.	HELPERS	Hrs.	TRUCK DRIVERS	Hrs.
A	P.L. Schneider	8	T Rosenberg	8		
B						
C						

Remarks: Rods stuck in cement, Had to get chain hoist To get them loose

NOTE: If item is chargeable to client, place circle around time entry. Please follow instructions on reverse side.

CLIENT

Longyear Company
308 E. Pima Street
Phoenix, AZ 85004

Telephone: (602) 258-6543
Telex: 667-428

Longyear

July 22, 1985

A. F. Budge (Mining) Ltd.
c/o Ben F. Dickerson III
7340 E. Shoeman Lane, Suite 111 "B" (E)
Scottsdale, Arizona 85251

RECEIVED JUL 24 1985

Dear Sir;

Enclosed you will find our proposal covering your planned drilling project located near Jerome, Arizona.

For this program we would plan to furnish a Longyear 34 air-powered drill machine equipped will all the necessary tools, casing, rods, and bits needed to complete the program.

It is also understood that miners lamps and self rescue will be furnished by the client at no cost to Longyear Company.

In computing the diamond drilling footage charges as outlined in the attached proposal, Longyear has assumed that the diamond bit expense will not exceed $2.50 per foot drilled. In the event the actual diamond bit expense experienced on the program exceeds the $2.50 per foot allowance, 50% of such overage will become an invoiceable charge in addition to all other outlined charges.

It is understood that a prepayment of $10,000.00 will be needed before drilling will commence, and that this prepayment will be used as retention money toward the last invoice. Invoiceing will be twice a month, due upon receipt. However, if sufficient financial information can be furnished to Mr. Bob Martin in our Minneapolis office, phone (612) 331-1331, he will determine if the billing can be open account.

We appreciate the opportunity to make our drilling services available to you for this project.

Sincerely,

LONGYEAR COMPANY

Manager, Southwestern Zone
Contract Drilling Division

RGB:es
c: D. Swayne
Encl.

Longyear

DRILLING PROPOSAL

Submitted by: Longyear Co.
308 E. Pima Street
Phoenix, Arizona 85004
(602) 258-6543

To: A. F. Budge (Mining) Ltd.
c/o Ben F. Dickerson III
7340 E. Shoeman Lane, Suite 111 "B" (E)
Scottsdale, Arizona 85251

Attn: Mr. Ben Dickerson III

Date July 22, 1985

Subject: Drilling Program Located Near – Jerome, Arizona

1. Mobilization and Demobilization of personnel and equipment – Per rig from and to portal.

   a. Coring rig: Mobilization – $ 500.00 Demobilization – $ 500.00

   b. Rotary rig: Mobilization – $ ---------- Demobilization – $ ----------
   Mob & Demob of Companyowned compressor $100.00

2. Overburden Drilling (or collaring hole)

From (ft)	To (ft)	Rock Bit Size		Diamond Bit Size	
		$	$	$	$

3. Rotary Drilling

From (ft)	To (ft)	Hole Size(s)		
		$	$	$

4. Diamond Core Drilling

2.5" 1.875" Core Size(s) 1.432"

From (ft)	To (ft)	HQ	NQ	BQ	
0	250	$ 23.05	$ 22.35	$ 22.05	$ ----------
0	500	23.85	22.35	22.05	----------
500	1000	----------	24.00	23.85	----------

Angle hole drilling ..... Add $ ---------- Per Ft.

LONGYEAR COMPANY
DRILLING PROPOSAL

To: A. F. Budge (Mining) Ltd. Date July 22, 1985

	Rate per Hour	
5. Rig Time (2 man crew)	Rotary Rig	Core Rig
a. Cementing — hole preparation, grouting and drilling (including necessary rod handling time)	$ ------	$67.10
b. Hole stabilizing and/or plugging	$ ------	$67.10
c. Installing and pulling casing	$ ------	$67.10
d. Rigging up and down	$ ------	$59.50
e. Moving between holes	$ ------	$59.50
f. Drilling, reaming, casing, stabilizing, etc. (hourly contracts)	$ ----------	$ --------
g. Re-entry and cleaning out old hole, plus cost of all bits and supplies	$ ------	$67.10
h. Installing and dismantling water lines	$ ------	$59.50
i. Tractor service (or at Longyear's hired cost)	$ ------	$ N/A
j. Hole survey or inclination test + rental & related cost of instrument	$ ------	$59.50
k. Wedging operations, plus cost of wedge and wedge bits	$ ----------	$ --------
l. Time spent moving equipment from portal into mine and out at end of project.	$ ------	$59.50
m. Time in excess of 10 hrs. per week overtime (50 hrs.) will be invoiced at	$ -------	$22.10
6. Standby or Delays		
For the convenience or the responsibility of client (2 man crew)	$ -------	$59.50

7. Casing and Casing Shoe (at Longyear List Price)

a. Left in hole at client's request	100 %
b. Lost through normal drilling operations	100 %

8. Reaming ~~Rec'd~~ will be invoiced at $67.10 per hour plus bits.

AT DEPTH	to	to	to	to
---------- to ---------- ft.	$ ----------	$ ----------	$ ----------	$ --------
---------- to ---------- ft.				
---------- to ---------- ft.				
---------- to ---------- ft.				

LONGYEAR COMPANY
DRILLING PROPOSAL

To: A. F. Budge (Mining) Ltd. Date July 22, 1985

9. In hole materials Invoicable to Client (At Longyear FOB job cost plus 12 %)

a. Drill mud ..... Yes X No ------

b. Mud additives ..... Yes X No ------

c. Hole stabilizing or plugging materials ..... Yes X No ------

d. Cement ..... Yes X No ------

e. Hole plugs ..... Yes X No ------

f. Other Soluble Oil Yes X

Rod Grease Yes X

10. ~~Water~~ Compressor Furnishing Charges will be invoiced at $800.00 per mo. for Longyear owned plus cost of fuel to operate.

a. Water truck rental charge ..... $---------- per month

b. Water truck mileage ..... ---------- per mile

c. Water truck driver (full time, if required) ..... $---------- Per hour

d. Water, if purchased ..... At Longyear's cost

e. Water line installation and dismantling ..... $59.50 Per hour

11. Access Roads and Drill Sites will be Prepared and Maintained by:

(X) Client

(---) Longyear Co. ..... @$---------- Per hour

12. Core Boxes

HQ size ..... @ $ 3.00 each + freight

NQ-BQ size ..... @ $ 2.75 each + freight

13. Footage Compensation (hourly contracts) ..... $---------- per foot drilled

14. Per Diem Charge To cover living allowances for crews ..... $---------- per man per day worked

15. Bits and Setting Charges (at Longyear's list price)

a. Rotary or rock bits ..... Yes ----- No X

b. Diamond bits and shells in excess of $2.50 per foot, split 50/50. Yes X No -------

16. Other See cover letter.

LONGYEAR COMPANY
DRILLING PROPOSAL
GENERAL SPECIFICATIONS

To: A. F. Budge (Mining) Ltd. Date July 22, 1985

17. Anticipated Requirements and Conditions

a. One Drill(s); type Longyear 34 air-powered drill

b. One Shift(s) per day (2 man crew @ 10 hours per shift).

c. 5 Day(s) per week or 10 hrs. a day, 6 days a week w/client paying for overtime in excess of 10 hrs. per week.

d. Minimum contract footage 4,000 ft.

e. Number of holes 10+.

f. Maximum depth 1,000 ft.

g. Average depth 300 ft.

h. Attitude of holes (from horizontal)

1) Vertical -------.

2) Angle @ 6 - 45 degrees. up and up to -90° down

i. Average depth of overburden ------- ft. Composition ----------

j. Size of hole or core size required: HQ, NQ, BQ.

k. Rock type to be drilled: ----------

l. Other: ----------

18. Insurance:

We will carry Comprehensive General Liability and Automobile Insurance covering personal injury and property damage and also statutory Workmen's Compensation Insurance. Certificates showing these coverages will be furnished upon request.

19. Invoices

a. Invoices covering the work performed will be prepared as promptly as possible after the fifteenth and last day of each month and payment shall be due upon receipt of invoice.

b. Invoices arising from this project will be subject to all applicable state taxes (Sales, Use, Gross Receipts, Privilege, etc.)

20. Prices quoted herein are firm only if this proposal is accepted on or before August 30, 1985 and if work is commenced within a reasonable period of time.

21. This proposal together with its covering letter will constitute the terms and conditions of this working agreement. Your authorized signature in the space provided below will acknowledge your acceptance and will validate the agreement.

By: [signature]
Manager, Southwestern Zone
Contract Drilling Division

ACCEPTED:
Company A.F. Budge (Mining) Limited

By [signature] Title Agent

Date August 2, 1985

Longyear Company
308 E. Pima Street
Phoenix, AZ 85004

Telephone: (602) 258-6543
Telex: 667-428

Longyear

July 18, 1985

A.F. Budge (Mining) Ltd
c/o
Ben F. Dickerson III
7340 E. Shoeman Lane
Suite 111 "B" (E)
Scottsdale, Arizona 85251

Dear Sir:

Enclosed you will find our proposal covering your planned drilling project located near Jerome, Arizona.

For this program we would plan to furnish a Longyear LM-37 drill machine, requiring 440 3 phase power on site. It is understood that an electrician will be available at no expense to Longyear Co. to wire power to the equipment.

It is also understood that miners lamps and self rescue will be furnished by the client at no cost to Longyear Company.

In computing the diamond drilling footage charges as outlined in the attached proposal, Longyear has assumed that the diamond bit expense will not exceed $2.50 per foot drilled. In the event the actual diamond bit expense experienced on the program exceeds the $2.50 per foot allowance, 50% of such overage will become an invoiceable charge in addition to all other outlined charges.

It is understood that a prepayment of $10,000.00 will be needed before drilling will commence, and that this prepayment will be used as retention money toward the last invoice. Invoiceing will be twice a month, due upon receipt. However, if sufficient financial information can be furnished to Mr. Bob Martin in our Minneapolis office, phone (612) 331-1331, he will determine if the billing can be open account.

We appreciate the opportunity to make our drilling service available to you for this project.

Sincerely

LONGYEAR COMPANY

Manager, Southwestern Zone
Contract Drilling Division

RGB/sb
c: D. Swayne
Encl.

Longyear

DRILLING PROPOSAL

Submitted by: Longyear Co.

To: Ben F. Dickerson III

7340 E. Shoeman Lane
Suite III "B" (E)
Scottsdale, Arizona 85251

Attn: Mr. Ben Dickerson III

Date July 18, 1985

Subject: Drilling Program Located Near — Jerome, Arizona

1. Mobilization and Demobilization of personnel and equipment — per rig from and to portal.

   a. Coring rig: Mobilization — $ 500.00 Demobilization — $ 500.00

   b. Rotary rig: Mobilization — $ Demobilization — $

2. Overburden Drilling (or collaring hole)

From (ft)	To (ft)	Rock Bit Size		Diamond Bit Size	
		$	$	$	$

3. Rotary Drilling

From (ft)	To (ft)	Hole Size(s)		
		$	$	$

4. Diamond Core Drilling

		2.5"	1.875" Core Size(s)		
		HQ	NQ	BQ	
From (ft)	To (ft)				
0	250	$ 23.85	$ 23.15	$ 22.85	$
0	500		23.15	22.85	

Angle hole drilling ..... Add $ Per Ft.

LONGYEAR COMPANY
DRILLING PROPOSAL

To: _____ Date July 18, 1985

5. Rig Time (2 man crew)	Rate per Hour Rotary Rig	Core Rig
a. Cementing — hole preparation, grouting and drilling (including necessary rod handling time)	$	$ 67.10
b. Hole stabilizing and/or plugging	$	$ 67.10
c. Installing and pulling casing	$	$ 67.10
d. Rigging up and down	$	$ 59.50
e. Moving between holes	$	$ 59.50
f. Drilling, reaming, casing, stabilizing, etc. (hourly contracts)	$	$
g. Re-entry and cleaning out old hole, plus cost of all bits and supplies	$	$
h. Installing and dismantling water lines	$	$ 59.50
i. Tractor service (or at Longyear's hired cost)	$	$ N/A
j. Hole survey or inclination test + rental & related cost of instrument.	$	$ 59.50
k. Wedging operations, plus cost of wedge and wedge bits	$	$
l. Time spent moving equipment from portal into mine and out at end of project.	$	$ 59.50
m.	$	$

6. Standby or Delays

For the convenience or the responsibility of client (2 man crew) $ $ 59.50

7. Casing and Casing Shoe (at Longyear List Price)

a. Left in hole at client's request ..... 100 %

b. Lost through normal drilling operations ..... 100 %

8. Reaming ~~Pxkfx~~ will be invoiced at $67.10 per hour plus bits.

AT DEPTH	to	to	to	to
~~_____ to _____ ft.~~	$	$	$	$
_____ to _____ ft.				
_____ to _____ ft.				
_____ to _____ ft.				

LONGYEAR COMPANY
DRILLING PROPOSAL

To: _____ Date July 18, 1985

9. In hole materials Invoicable to Client (At Longyear FOB job cost plus 12 %)

a. Drill mud ..... Yes X No ---

b. Mud additives ..... Yes X No ---

c. Hole stabilizing or plugging materials ..... Yes X No ---

d. Cement ..... Yes X No ---

e. Hole plugs ..... Yes X No ---

f. Other Soluble oil Yes X

Rod Grease Yes X

10. Water Furnishing Charges

a. Water truck rental charge ..... $ --- per month

b. Water truck mileage ..... --- per mile

c. Water truck driver (full time, if required) ..... $ --- Per hour

d. Water, if purchased ..... At Longyear's cost

e. Water line installation and dismantling ..... $ 59.50 Per hour

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(X) Client

(---) Longyear Co. ..... @$ --- Per hour

12. Core Boxes

HQ size ..... @ $ 3.00 each + freight

NQ-BQ size ..... @ $ 2.75 each + freight

13. Footage Compensation (hourly contracts) ..... $ --- per foot drilled

14. Per Diem Charge To cover living allowances for crews ..... $ --- per man per day worked

15. Bits and Setting Charges (at Longyear's list price)

a. Rotary or rock bits ..... Yes --- No X

b. Diamond bits and shells in excess of $2.50 per foot, split 50/50. Yes X No ---

16. Other See cover letter.

LONGYEAR COMPANY
DRILLING PROPOSAL
GENERAL SPECIFICATIONS

To: _____ Date July 18, 1985

17. Anticipated Requirements and Conditions

a. One Drill(s); type Longyear LM-37

b. one Shift(s) per day (2 man crew @ 8 hours per shift).

c. 6 Day(s) per week

d. Minimum contract footage 4,000 ft.

e. Number of holes 10+.

f. Maximum depth ~~400~~ 1000' ft.

g. Average depth ~~250~~ 300' ft.

h. Attitude of holes (from horizontal)

1) Vertical _____.

2) Angle @ 6-20 ~~45~~ degrees. up

i. Average depth of overburden --------- ft. Composition ----------

j. Size of hole or core size required: HQ, NQ, BQ

k. Rock type to be drilled: _____

l. Other: ----------

18. Insurance:

We will carry Comprehensive General Liability and Automobile Insurance covering personal injury and property damage and also statutory Workmen's Compensation Insurance. Certificates showing these coverages will be furnished upon request.

19. Invoices

a. Invoices covering the work performed will be prepared as promptly as possible after the fifteenth and last day of each month and payment shall be due upon receipt of invoice.

b. Invoices arising from this project will be subject to all applicable state taxes (Sales, Use, Gross Receipts, Privilege, etc.)

20. Prices quoted herein are firm only if this proposal is accepted on or before _____ and if work is commenced within a reasonable period of time.

21. This proposal together with its covering letter will constitute the terms and conditions of this working agreement. Your authorized signature in the space provided below will acknowledge your acceptance and will validate the agreement.

By: _____
Manager, Southwestern Zone
Contract Drilling Division

ACCEPTED:
Company _____

By _____ Title _____

Date _____

24 WOLVERINE DRILL

The 24 Wolverine Drill combines the cost efficient and conservative design features of the 24 Standard Drill with the convenience of direct air or electric drive and rigid mounting for underground operations. All existing advantages of the 24 Standard Drill apply to the Wolverine. The same features — with the exception of the throttle control and bit speed tachometer — have been incorporated in the Wolverine design. Since the tachometer requires a 12V power source, it is not compatible with the Wolverine arrangement. Rotation controls for the Wolverine are furnished to suit the air or electric power source.

Power Options

The drill may be supplied with an industrial, heavy-duty, vane-type air motor or an electric motor compatible with local electric conditions. Consult your local Longyear Marketing Center for electrical conditions that are different than those in the specifications.

Hydraulic System

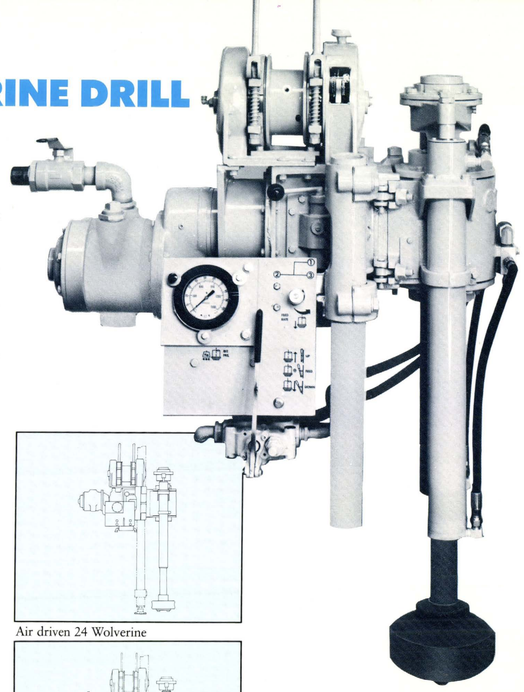
A separate air or electrically driven auxiliary hydraulic pump/tank system is utilized to provide power for the Wolverine hydraulic feed system. This auxiliary hydraulic system is priced separately but is an essential item for all Wolverine drills.

Column Mounting

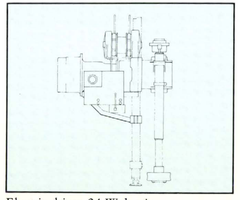
Heavy-duty clamps integrated into the main housing provide strong, rigid means of mounting the drill on 2¾ inch (70 mm) columns. The columns are optional extras.

Bevel Pinion Protection

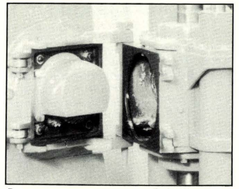
A bevel pinion safety cover is fitted to both the 24 Standard Drill and the Wolverine to protect the operator during open-head hoisting operations and to protect the bevel from damage by hoisting plugs, rods or tools.



Air driven 24 Wolverine

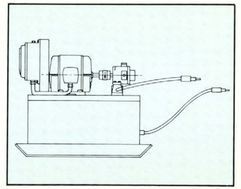


Electric driven 24 Wolverine



Cover protects operator and shields bevel pinion against damage.

For reliable low cost underground core drilling



Satellite oil circulating system

SPECIFICATIONS FOR THE LONGYEAR 24 WOLVERINE DRILL

			AIR		ELECTRIC 60 Hz		ELECTRIC 50 Hz	
BIT SPEEDS	Slow Bevel Gears	Low Gear	203 rpm		183 rpm		153 rpm	
		2nd Gear	452 rpm		410 rpm		341 rpm	
		High Gear	842 rpm		757 rpm		632 rpm	
	Medium Bevel Gears	Low Gear	339 rpm		306 rpm		255 rpm	
		2nd Gear	759 rpm		683 rpm		569 rpm	
		High Gear	1403 rpm		1263 rpm		1052 rpm	
	Fast Bevel Gears	Low Gear	475 rpm		428 rpm		357 rpm	
		2nd Gear	1062 rpm		956 rpm		797 rpm	
		High Gear	1964 rpm[1]		1768 rpm[1]		1474 rpm	
			ft/min	m/min	ft/min	m/min	ft/min	m/min
HOISTING SPEEDS		Low Gear	68	20	61	18	52	16
		2nd Gear	154	46	139	42	116	35
		High Gear	286	87	257	78	215	66
POWER			Ingersoll Rand 20 hp (15 kW) Speed 2000 rpm Air Consumption 430 cfm @ 90 psi (12.2 m³/min @ 620 kPa)		Louis Allis 10 hp (7.5 kW) 3 ph, 60 cyc 230/460 vclts 1800 rpm (nom.)		Louis Allis 10 hp (7.5 kW) 3 ph, 50 cyc 220/380 volts 1500 rpm (nom.)	
TRANSMISSION								
Type			Automotive sliding gear type 3;					
Speeds			gear ratios 4.13:1, 1.86:1, 1:1					
DRUM HOIST								
Drum diameter			5-1/2 inches (140 mm)					
Width			2-3/4 inches (70 mm)					
Capacity (5/16 inch cable)			65 feet (19.7 m)					
HYDRAULIC HEAD								
Drive rod ID			1-13/16 inches (46 mm)					
Cylinder ID			2-1/2 inches (64 mm)					
Length of feed			24 inches (610 mm)					
Angle range			360°					
HYDRAULIC PUMP[3]								
Type			Variable volume					
Volume			0 to 7.5 gpm (0 to 28.4 L/min)					
Maximum working pressure			1000 psi (6895 kPa)					
Recommended continuous working pressure			500 psi (3448 kPa)					
			lb	kg	lb	kg		
APPROXIMATE WEIGHT		Net weight	650	295	780	353		
		Boxed U.S.	700	320	830	376		
		Boxed exp.	800	365	930	421		
			Inches	mm	Inches	mm		
DIMENSIONS[2]		Width	24	610	25	635		
		Length	38	965	47	1194		
		Height	58	1460	58	1460		
CUBIC CONTENT[2] Boxed for export			25 ft³ 0.7 m³		32 ft³ 0.9 m³			

[1]Continuous operation at these speeds is not recommended.
[2]Dimensions shown are for drill in drilling position. Cubic content is for drill broken down for export shipment.
[3]Auxiliary hydraulic system is priced separately but is an essential item for all Wolverine Drills.

Longyear is constantly striving to improve its products and must, therefore, reserve the right to change design, materials, specifications and price without notice.

Longyear®

LONGYEAR COMPANY
925 Delaware Street S.E.
Minneapolis, Minnesota 55414
U.S.A.
Phoenix, Arizona
York, Pennsylvania
Salt Lake City, Utah
Spokane, Washington

LONGYEAR AFRICA (PTY.) LTD.
P.O. Box 14189
Farrarmere Benoni, Transvaal 1518
SOUTH AFRICA

LONGYEAR AUSTRALIA PTY. LTD.
919-929 Marion Road
Mitchell Park, South Australia 5043
AUSTRALIA
Kalgoorlie, W.A.
Brisbane, Queensland
Perth, W.A.

LONGYEAR CANADA INC.
P.O. Box 330
1111 Main Street West
North Bay, Ontario P1B 8H6
CANADA
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St. Leonard, Quebec
Concord, Ontario
New Westminster, B.C.

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Apartado Postal 5235
San Jose
COSTA RICA, C.A.

LONGYEAR CHILE, LTD.
Las Dalias 2900 (Macul)
Casilla 15118, Nuñoa
Santiago
CHILE

LONGYEAR DEUTSCHLAND GmbH
Postfach 460, Grafftring 1
3100 Celle
FEDERAL REPUBLIC OF
GERMANY

LONGYEAR FRANCE
Boite Postale 1
78191 Trappes (Cedex)
FRANCE

LONGYEAR IBERICA S.A.
Avda. de los Metales, s/n°
Leganes (Madrid)
SPAIN

LONGYEAR DE MEXICO S.A. DE C.V.
Guillermo Barroso No. 18-F
Fracc. Industrial Las Armas
Apartado Postal No. 325
Tlalnepantla, Edo. de Mexico
MEXICO

LONGYEAR NEDERLAND B.V.
P.O. Box 56
Nijverheidsweg 47
4870 AB Etten-Leur
THE NETHERLANDS

LONGYEAR NEW ZEALAND, LTD.
P.O. Box 43-030, Mangere
Canning Crescent, Auckland
NEW ZEALAND

LONGYEAR PHILIPPINES DIAMOND PRODUCTS, INC.
7232 Malugay Street
P.O. Box 308
Makati, Rizal 3117
PHILIPPINES

LONGYEAR (U.K.) LIMITED
Littlemoor
Eckington
Sheffield S31 9EF
ENGLAND

Longyear®

Longyear®

24 Diamond Core Drill

This field-proven drill combines ruggedness and efficiency with light weight and transportability. It is the driller's choice for the medium-depth coring and sampling program.

Diamec (Atlas Copco – 35 HP unit)	$20,000
frt.	1000
Drill string 1000' N or B (used)	12,000
Core bbls, pump, etc	7,500
	40500

4000 drilling at 40'/shift

100 shifts × $200	20,000
Bits + supplies at $3.00/ft	12,000
	$72,500

— Powers —

Powers – U.G. drilling. Silic volc. Fair # of gouge fault zones will need some additives

Hydraulic rig N or B size

Guesses Ft/shift Range

___ to ___

Bit + additive costs/ft ___ to ___

Does Longyear's hyd. rig have any big problems?

call 612-757-1028

@ 5 (3 out time)

Specifications
Longyear 65 diamond core drill

Rated Capacity	EW—EX	600 ft.	183 m.
	AW—AX	500 ft.	152 m.
	BW—BX	350 ft.	107 m.
	NW—NX	300 ft.	91 m.
Rotary Air Motor (HP)		20	
Dimensions	Width	15½ in.	39.4 cm.
	Height	12 in.	30.5 cm.
	Length	42½ in.	108 cm.
Net Weight			
	Standard Drill with chuck	200 lbs.	91 kg.
	Standard Drill with blast hole coupling	195 lbs.	88.4 kg.
	Drill equipped with 65 Rod Puller	290 lbs.	131.5 kg.
Bit Rotating Speeds — Nominal			
	Standard	0-1500 RPM	
	Optional	0-1000 RPM	
	Optional	0-3000 RPM	
Screw Feed — "Built-in" type			
	Length of Feed	24 in.	60.9 cm.
	I.D. of Coring Feed Screw*	1½ in.	3.8 cm.
	Feed Gears (4) —		
	Revolutions/inch advance		
	Standard	100, 200, 300, 500	
	Optional	50, 75, 800, 1100	
	Special	0, 101, 170	

*Optional heavy-wall feed screw available for non-coring blast hole drilling.

Bulletin B-5002 Bp 5m 7/80

UNITED STATES
925 Delaware St.
Minneapolis, Minn. 55414

Phoenix, Arizona
Keewatin, Minnesota
Reno, Nevada
York, Pennsylvania
Salt Lake City, Utah
Max Meadows, Virginia
Spokane, Washington
Dover, Ohio

AUSTRALIA
919-929 Marion Rd.
Mitchell Park, S.A. 5043

Kalgoorlie, W.A.
Mt. Isa, Queensland
Perth, W.A.
Wynyard, Tasmania

BRASIL
Caixa Postal 30.899
Sao Paula 01.000

CANADA
P.O. Box 330
North Bay, Ontario P1B 8H6

Moncton, N.B.
St. Leonard, Que.
Concord, Ont.
New Westminster, B.C.

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Macul, Santiago

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San Jose

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Boite Postal 1
78191 Trappes CEDEX

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OF GERMANY
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3100 Celle

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Kohoku-ku, Yokohama

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Edo. de Mexico

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Etten Leur

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Auckland

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Makati, Rizal D708

SOUTH AFRICA
P.O. Box 14189
Farrarmere, Benoni
Transvaal

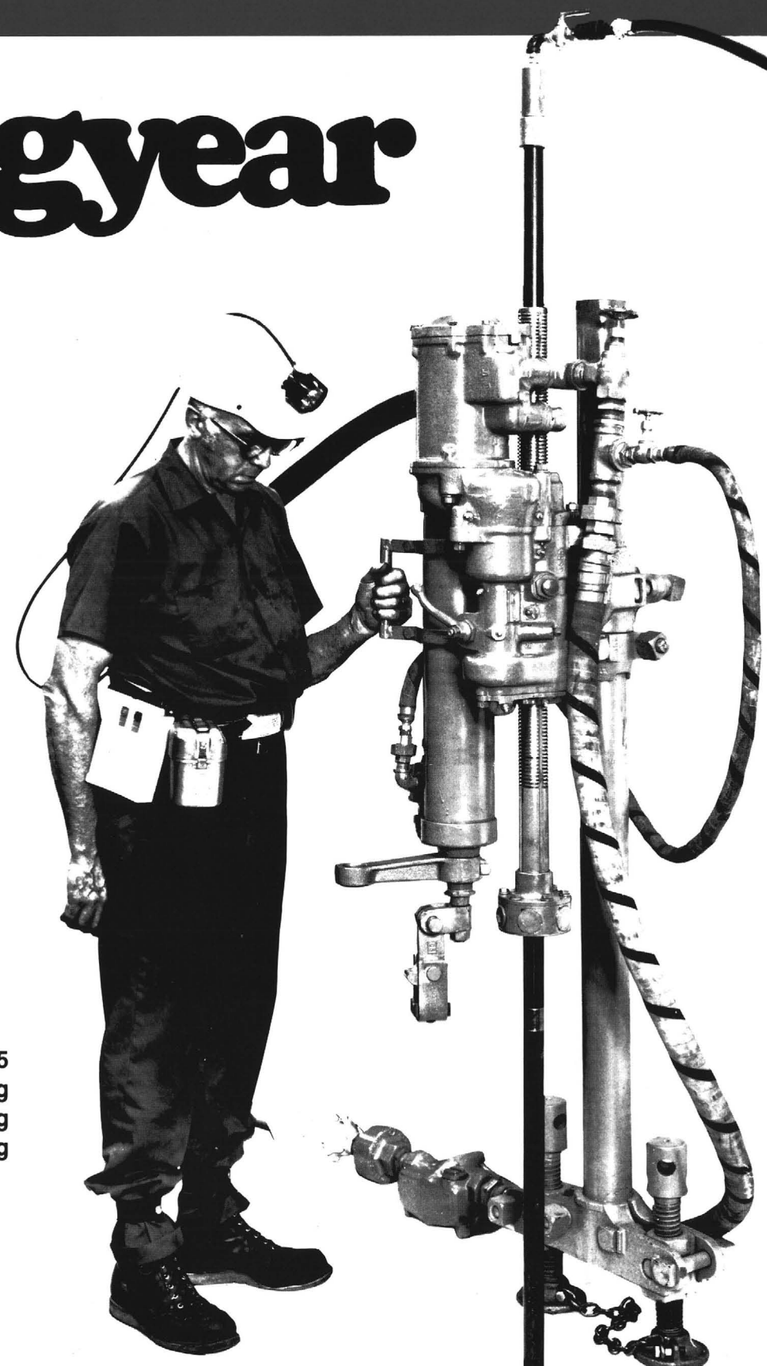
SPAIN
Avda. de los Metales S/No
Leganes (Madrid)

UNITED KINGDOM
Holbrook Green
Holbrook
Sheffield S19 5FE

Longyear

Now from Longyear . . .
65 Diamond Core Drill

Longyear®



The Longyear 65
for fast core drilling
blast hole drilling
surface grout hole drilling

Longyear

65 Diamond Core Drill

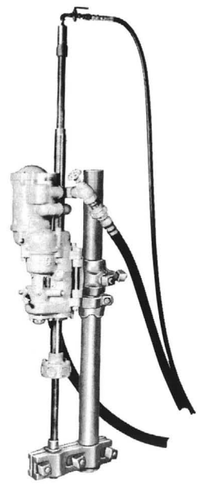
Lightweight Powerful Air-driven

The Longyear 65 has all the job-proven features which made the CP-65 one of the world's most widely used, light-weight diamond core drills.

Its minimal weight (200 lbs., 90.7 kg.) and its length (42½", 1.08M) make it easy to move and set up in small working spaces.

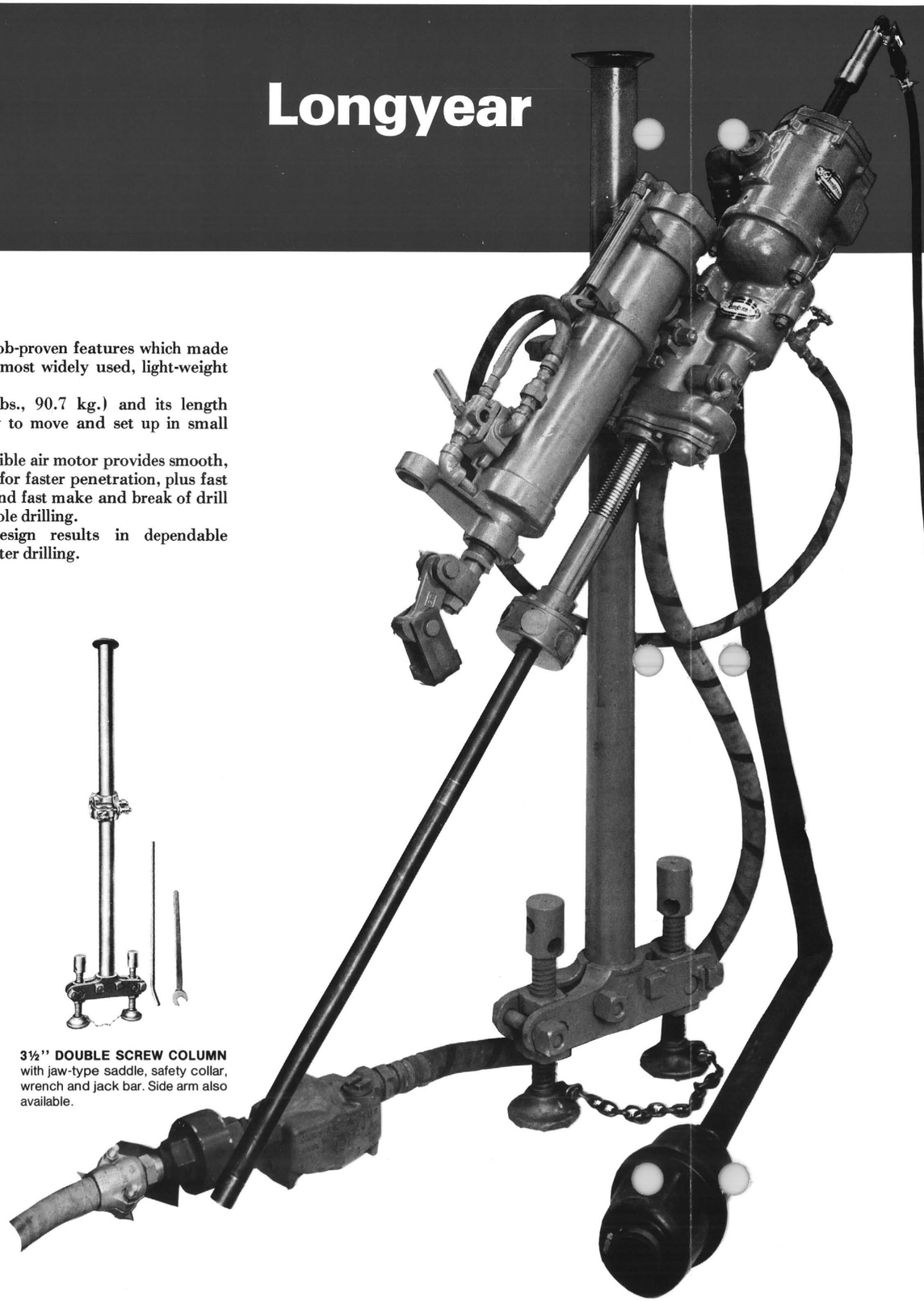
The powerful 20 h.p., reversible air motor provides smooth, sustained, vibration-free drive for faster penetration, plus fast positioning of the feed screw and fast make and break of drill rods under power when blast hole drilling.

Well balanced over-all design results in dependable performance and smoother, faster drilling.



GROUT PIPE CLAMP includes column pipe, saddle clamp, safety collar and bushing. TWO SIZES AVAILABLE: For 1½" or 2" grout pipe and for 3" grout pipe.

3½" DOUBLE SCREW COLUMN with jaw-type saddle, safety collar, wrench and jack bar. Side arm also available.



Construction

Steel housings of ample section make the Longyear 65 a fully enclosed, dust-proof, oil-tight unit. Every pound of useless weight has been eliminated without sacrificing sturdiness and durability. Ball bearings are used throughout the drill, and its efficient spur gear drive has all parts running in grease or oil so that wear and friction losses are at a minimum.

Power-Vane Motor

The high-torque, rotary type air motor develops ample power to drill to depths of 600' (with EW fittings) with ordinary mine air pressures. It is trouble free, runs without vibration and is economical in air consumption. The flexibility of stepless throttle regulation with high torque even at low speeds, makes for low bit cost and maximum core recovery. The motor pinion is renewable, instead of being integral with the rotor shaft, which is the usual construction.

Feed

The built-in screw feed makes the 65 a self-contained unit. It maintains absolute alignment of working parts, regardless of feed pressure. The distance from center line of the feed screw to the bottom of the cone is held to a minimum, thereby reducing the tendency to push the mounting out of line. In average drilling, ordinary rock drill mounting suffices, without extra bracing. Four sets of feed gears, any one of which may be engaged without stopping the drill, give wide selectivity in rate of feed and enable the operator to take full advantage of variations in ground and bit condition.

Self-lubricating feed screw gives full 24-inch run — sufficient to change 2-foot rods in restricted quarters. Entire drill swings down and out of the way (by loosening one nut) when pulling rods. The feed screw easily accommodates the EW core barrel, so that use of a short core barrel in starting holes is unnecessary.

Mounting

Mounts on a standard rock drill saddle and works in any position from column, arm or crossbar. Short overall length of the drill eliminates much costly station cutting.

Safety Chuck

A two-jaw safety chuck, carefully machined for perfect balance at high speeds, is provided. Chuck jaws are tightened by two oversize chuck screws with countersunk heads that cannot get caught in the operator's clothing. The chuck body has three pairs of holes for chuck screws. Successive pairs of holes may be used as threads become worn, thus giving long life. A long Allen-type wrench, with deep engagement, gives ample leverage to readily tighten chuck screws without tendency to slip.

Pneumatic Rod Puller

The optional 65 rod puller is of the two-position type, bolted to the drill saddle plate for perfect alignment with the drill hole. A guide arm is provided to insure rod alignment and prevent binding. Its use is strongly recommended for holes deeper than 100'.

It will handle 400' of EW rods at 90 psi air pressure on vertical holes and longer lengths on angle and flat holes. Weight of drill, equipped with the rod puller, is 290 lbs.

Heavy Wall Feed Screw

This optional feed screw is available for non-coring blast hole drilling. A high speed water swivel and blast hole rod coupling can be threaded directly to the feed screw, eliminating the chuck.

For more information about products or contracting services, contact the Longyear office nearest you:

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Longyear.
Where in the world do you need us?

Longyear

Industrialization of the world over the past century has demanded ever-increasing amounts of metals and other basic raw materials. Throughout most of this time, Longyear has grown along with the mining industry — providing diamond core drilling services and equipment for recovering the core samples so invaluable for geological information and for verifying the presence of workable mineral deposits.

Longyear crews, in the course of recovering millions of meters of core in every conceivable kind of geological formation, have developed a unique combination of skills and tools for accomplishing their tasks. The combination is available to you as a complete contract drilling service, or the tool system can be provided for operation by your crews.

Longyear's help in selecting the tools and putting them to work comes along with them.

We're ready — any place in the world — when you need us.

Russ Beddow

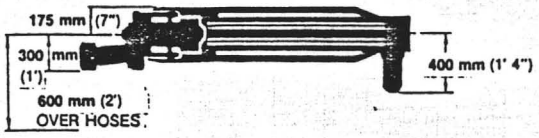
Longyear LM37 PRODUCT NEWS

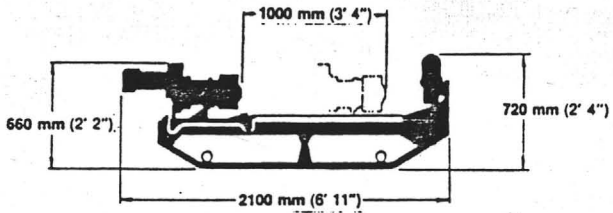
7
NUMBER

26 July 1984
DATE

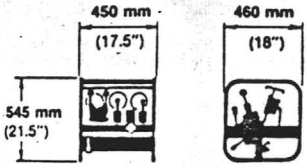
Dimensions and Masses

(Mark 2 Design)

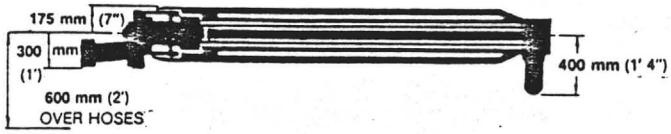


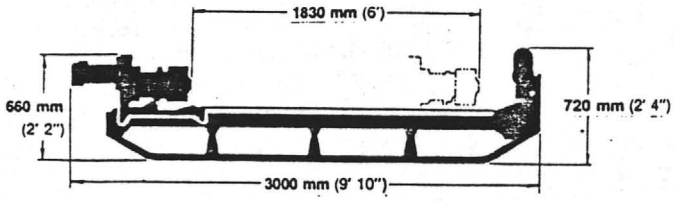


SHORT FEED FRAME
Weight 316kg (695lb)

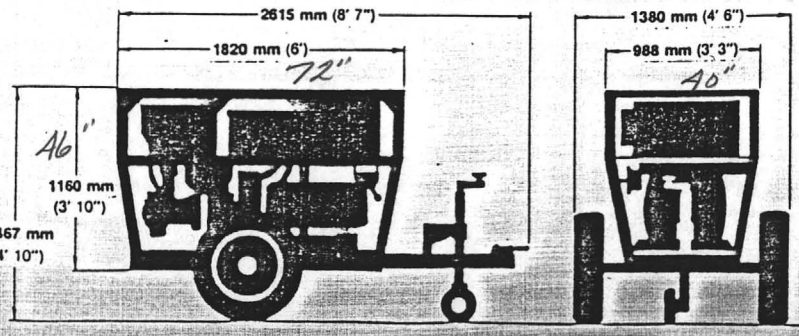


CONTROL PANEL
Weight 35kg (77lb)





LONG FEED FRAME
Weight 336kg (739lb)



POWER PACK Weight 1200kg (2640lb)

cont...

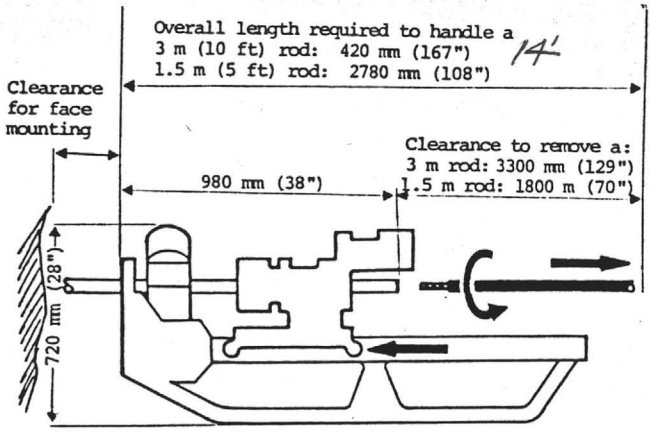
Russ Beddow

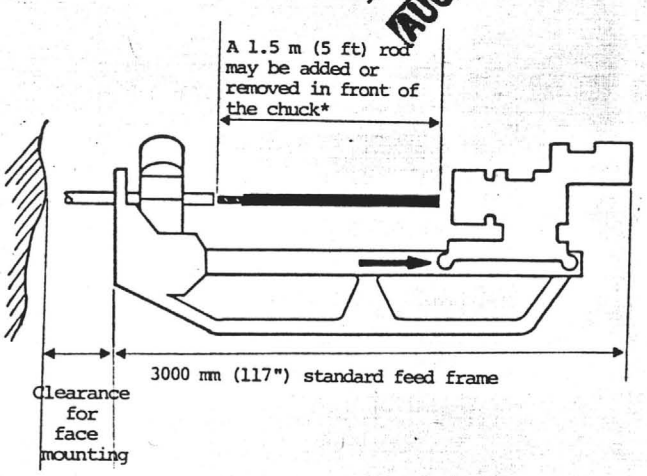
Longyear LM37 PRODUCT NEWS

NUMBER 9

DATE 3 August 1984

How much space does one need to work with the LM37 drill?





*with standard feed frame only (1830 mm [72"] stroke)

There are no set dimensions or rules of thumb. However, the following should be considered:

1. ORIENTATION (ANGLE) OF THE HOLE. This will determine the general shape of the minimum space required.
2. DEPTH OF HOLE. There must be enough space near the feed frame to stack all the rods. The rod stack must be conveniently positioned for ease and speed of rod cycling. For deep holes drilled with conventional core barrels, a helper's platform may be required at certain angles to speed up rod handling.
3. ADDING RODS. The fastest and most convenient way of adding or removing rods is from behind the drill head. Note on the sketches that the overall length required to remove a 1.5 m (5 ft) rod is less if the rod is pulled from behind the chuck rather than between the chuck and rod holder.
4. CONTROL PANEL. The control panel must be positioned in a convenient and safe place. This is particularly true for steep up-holes. This position varies from set-up to set-up and with working conditions. The control panel requires some space (width) but this is usually not a major concern.

cont...

5. POWER PACK. It is desirable to place the power pack as far away as practical from the operator's station to reduce noise levels and to position it so that the air flow is directed away from the operator (and towards a ventilated area). The 6 m (20 ft) connecting hoses limit the distance between the power pack and the rest of the drill.

   On steep up-holes, the rod holder may have to be lifted quite high to be anchored to the rock face. In this case, the length of the hoses leading to the rod holder and feed cylinder would be the limiting factor.

   NOTE: DO NOT LENGTHEN HOSES WITHOUT APPROVAL FROM THE FACTORY.

6. SHORT FEED FRAME. Consider this frame for confined spaces. The overall length (without face mounting assembly) is 2170 mm (85 in). The stroke is 1000 mm (39 in) only so that a 1,5 m (5 ft) rod would have to be added from behind the drill head. In this case, a minimum overall length of 2780 mm (108 in) would be required (see sketch). Very short rods (0.5 m or 2 ft) could be added between the chuck and the rod holder. Make sure the power pack will still fit.

Ivan.

LM37 DIAMOND CORE DRILL

Model	Description	Approx. Shipping Weight kg	Approx. Shipping Weight lb	Export Boxing m^3	Export Boxing ft^3	Price US $
LM37	Drill with **standard** feed frame	1 100	2,425	4.40	155.38	$59,450.00
LM37	Drill with **short** feed frame	1 020	2,249	3.96	139.84	58,525.00

BASIC DRILL INCLUDES:

Power pack less prime mover, and less starter	Feed frame, complete with drill head and rod holder
Interconnecting hoses	One set of jaws for both chuck and rod holder
Control panel	One set of guide bushes

TABLE I / POWER UNIT

	Price US $
Standard electric motor mounted on drill —	$1,500.00
Standard motor starter assembly mounted on drill —	$3,600.00

NOTE: Starter assembly supplied by the customer must meet certain minimum specifications to satisfy Longyear warranty conditions. Contact Longyear Minneapolis for full details.

STANDARD ELECTRIC MOTOR (p/n 44778) SPECIFICATIONS

Power:	50 hp (37 kW)	General purpose, open drip proof.
Voltage:	230/460 v A.C.	Class 'B' insulation. Normal starting torque.
Phases:	3 phase	NEMA design B. 40°C. ambient.
Frequency:	60 Hertz	Continuous duty. Horizontal ball bearing.
Speed:	1800 rpm	Special varnish treatment type B.
Frame size:	326T	Conduit box located on right hand side when
Service factor:	1.15	facing output shaft end.

STANDARD MOTOR STARTER ASSEMBLY (p/n 49181) SPECIFICATIONS

For 50 hp, 1800 rpm, 460 v, 3 PH, 60 Hz Motor

Across-the-line non-reversing magnetic motor starter, 3 phase, 3 pole, NEMA type 4, NEMA size 3, watertight, dusttight, stainless steel enclosure. Foot mounted.
Cabinet Size: Height – 20 in
Width – 30 in
Depth – 8 in

Starter includes:

1. 100 AMP main disconnect switch (shielded)
2. Labelled indication lamp for low oil level
3. Labelled run light
4. Labelled phase reversal light
5. Start-Stop and Reset in panel
6. 12 volt remote start/stop wiring
7. Three overload heaters
8. Labelled overload indication lamp

LM37 DIAMOND CORE DRILL

TABLE II / DRILL HEAD GEAR SET

Specify gear set to be mounted in the drill head. One set included with drill. Choose from table below.

Extra or alternate sets can be purchased separately at prices shown below. Unless otherwise specified, medium gears will be supplied.

	HIGH SPEED RATIO 1:1.29	MEDIUM SPEED RATIO 1:1.73	LOW SPEED RATIO 1:2.38	UNIT PRICE US $
Drive Gear	94332	94407	94482	380.00
Driven Gear	94311	94406	94481	515.00

TABLE III / JAWS AND BUSHINGS

Specify chuck jaw set, rod holder set, and guide bush set to be mounted on drill. One set included with drill. Choose from table below.

Extra or alternate sets can be purchased separately.
Unless otherwise specified, LTK 46 Jaws and Bushings will be supplied.

	LTK 46	LTK 56	AQ	BQ	AW Casing	AXWL	BXWL	AW AW-UL	BW BW-UL	Price/Set US $
Chuck Jaw Set	94636	94576	94570	94572	94574	94580	94574	94636	94578	840.00
Rod Holder Jaw Set	94582	94593	94683	94587	94591	94585	94591	94582	94589	400.00
Guide Bush Set	94559	94567	94564	94562	—	94564	—	94564	94562	280.00

TABLE IV / MOUNTINGS

For proper set-up and operation of the drill, one item of each of the following three groups is essential.

		Price US $
56083	Face mounting assembly, or	565.00
56084*	Face mounting assembly with jacking screws	635.00
94488*	Anchor bar assembly (also called adjustable leg) *2 each required per drill, or*	665.00/set
94474	Anchor bar assembly spike (also called adjustable leg) *2 each required per drill.*	485.00/set
94495*	Control panel mounting, or	145.00
94499	Control panel stand	195.00

*Unless otherwise specified, these items will be supplied with the drill, and the prices listed will be added to the drill.

TABLE V / ACCESSORY EQUIPMENT

		Price US $
56030	Wheels and towing group (towing ball)	2,955.00
94946	Wheels and towing group (towing eye)	3,070.00
94503	Mining bar mounting	2,480.00
56049	Feed frame support bracket (Qty required: 2)	105.00
56044	Lifting beam for power pack	545.00
94471	Rod slide	1,960.00
94462	Rod slide with wireline sheave	2,705.00
94530	Rotation service unit	3,875.00
94637	Gear puller	85.00
94554	Hex. socket set (in)	60.00
93765	Allen key set (metric)	12.00

All prices F.O.B. Minneapolis, Minnesota, U.S.A.

PRINTED IN U.S.A.

Russ Beddow

Longyear LM37 PRODUCT NEWS

21
NUMBER

14 March 1985
DATE

NQ Capacity

The drill head and rod holder both have an ID of 60 mm (2.36 in) allowing the passage of a BQ reaming shell. Drilling with larger-diameter tools is possible under certain conditions and with definite limitations as follows:

1. The entire face clamp assembly must be removed, leaving a 125 mm (4.87 in) opening through mounting bracket 94459. Automated rod handling capability and its inherent safety are then lost, obviously, but this might either be acceptable (on flat holes, for instance) or somehow compensated for by the user (at its own risks!).

   NOTE: The absence of support up front will impose more care in starting a hole in hard rock and might increase vibrations.

2. A sub must be used below the head.

3. 1.5 m (5 ft) rods or casings should be used although 3 m (10 ft) lengths may also be practical in certain cases, with the head swung out of the way. This relates to standard-length feed frames.

4. Depth guidelines for NQ drilling are estimated to be:

100 m (330 ft)	vertical up
120 m (400 ft)	horizontal
200 m (660 ft)	vertical down

Ivan.

Dimensions and Masses

(Mark 3 Design)

1. Dimensions

	Power Pack (Mark 3)		Drill Pack (standard length)		Control Panel (without stand)	
	mm	in	mm	in	mm	in
Length[1]	1850	72.2	2765	108.8 (9')	450	17.7
Width[2]	900	35.1	725	28.5	460	18.1
Height[3]	1030	40.2	720	28.3	545	21.5

[1] Length is basically unchanged from the Mark 2 design.

[2] Width is 88 mm (3.4 in) shorter than the Mark 2 design.

[3] Height is 130 mm (5 in) less than the Mark 2 design.

NOTE: With tow bar and wheels, dimensions become:

Length: 3250 mm (127 in)
Width: 1420 mm (55 in)
Height: 1270 mm (50 in)

2. Net Masses (approximate)

	kg	lb
1. Mark 3 Power Pack with motor, starter, oil, less hoses	1200	2640
2. Mark 3 Power Pack with oil, less motor, starter, and hoses	920	2030
3. Complete feed frame with rotation unit, chuck and holder	336	740
4. Rotation unit and chuck	83	183
5. Face clamp plus jaws and bushes	42	93
6. Control panel plus all hoses	70	155
7. Rod slide p/n 94462	38	84
8. Rod slide p/n 94471	25	56
9. Face mounting p/n 94840	44	97
10. Anchor bar	19	42

The electric motor and frame may vary in size and weight. The 200 frame size motor as used by Longyear Australia is 260 kg (573 lb). The 326T frame size motor as used by Longyear U.S.A. is 237 kg (522 lb).

Ivan.

Russ Beddow

LONGYEAR PHOENIX

JOB #860

11 (1st Revision)
NUMBER

25 Sept. 1984
DATE

Longyear LM37

PRODUCT NEWS

SEP 27 1984

LM37 Drilling Depth Guidelines*

Please remove Product News #11 dated 30 August 1984 from your files. It is now obsolete. Replace it with this issue.

We have revised our previous guidelines to take into account the following:

- a 10% allowance for rod drag which we feel is more realistic than the 20% used earlier. This is for vertical up and down holes only.
- a different weight for aluminum rods. Published data was contradictory and we have opted for the weights that are most widely published and most up-to-date.

NOTE: The guidelines which will appear in the product bulletin will be the same as those printed here.

	Hole Direction					
	Vertical Up		Horizontal		Vertical Down	
System	m	ft	m	ft	m	ft
LTK 46 (or TT46) with Alu rods	450	1500	600	2000	800	2600
with LTK rods	350	1150	450	1500	625	2050
LTK 56 (or TT56) with Alu rods	300	1000	400	1300	500	1650
with LTK rods	300	1000	400	1300	500	1650
AW 34	450	1500	600	2000	700	2300
BW 44	225	750	400	1300	400	1300
AQ	250	820	400	1300	400	1300
BQ	200	650	350	1150	325	1050

*These figures are based on field experience and may be reasonably expected. Actual drilling capability will depend on in-hole tools and conditions, as well as drilling techniques used. These variable factors will cause changes in depths obtained. Please, always refer to the drill's specifications for available thrust, pull and torque to aid in estimating capacities for your specific application. Note that no claim is made for products listed that are not produced by the Longyear Company to perform at these depths.

cont...

Russ Beddow

Longyear LM37 PRODUCT NEWS

NUMBER 20

DATE 25 Jan. '85

Depth Capacity with AQ Drill Rods

We have now seen the LM37 drill to its rated depth capacity on numerous occasions (particularly in BQ or BQ-3 sizes) and even go well beyond the rating in several instances. This is not entirely surprising since our drilling depth guidelines were purposely conservative.

We are now happy to report what we believe to be a record depth so far for AQ drilling. One of the two LM37 drills at Homestake Mining Company (USA) has completed an AQ, +5°/horizontal hole at a depth of 1921 feet (585 m). This is 621 feet (185 m) beyond the published depth guideline for horizontal AQ holes (1300 feet or 400 m). Chuck speed was about 500 rpm at the bottom of the hole (low speed gear set).

An earlier AQ flat hole was completed by Homestake at 1488 feet (453 m) on December 11, 1984. The chuck was still turning at 900 rpm (medium speed gears).

In South Africa, Boart Drilling has reached 1598 feet (487 m) with AQ on a flat hole. Daily footage at the bottom of the hole continued to be what it was throughout the hole. Interestingly, the round tripping time (out and back in) at the bottom of the hole was only one hour. This would be about 265 feet (81 m) in 5 minutes as opposed to the 200-230 feet (60-70 m) in 5 minutes printed in the bulletin.

Ivan.

REMINDER: This publication is for internal distribution only.

As you know, any depth guideline is just that - a guideline. It was first based on certain assumptions (straight and clean hole, equipment in good condition, capable driller and so on). Then theoretical calculations shaped by Engineering judgement provided a broad basis for establishing capacities. Finally, and most important, extensive field experience with seven LM37's was used to either confirm or modify these capacities to arrive at our final general guidelines.

To extrapolate these capacities for a specific application, please be aware of the following limiting factors:

-For Vertical Down Holes: the pulling force of the feed cylinder which is available to lift the rods out of the hole.

-For Vertical Up Holes: the feed force of the feed cylinder which is available to support the weight of the rod string and apply a suitable load to the bit for efficient drilling. The drillability of the rock will have a major influence on the ultimate depth capacity.

-For Horizontal Holes: the torque available at the chuck to rotate a given-size bit at rpm's high enough to obtain efficient performance. This is in fact the combination of:

a. the torque required to make the bit cut and
b. the torque required to rotate the rod string against friction.

However, remember that the output torque at the chuck varies with different gear sets and different drilling speeds, thereby greatly influencing the effective depth capacity. What we have shown in our table is a general compromise guideline which tries to account for all these variables.

Ivan.

Specifications

POWER	
Wisconsin, Gas	4 cylinder *31 HP @ 2200 RPM
John Deere Diesel	4 cylinder *40 HP @ 2200 RPM
Deutz Diesel	3 cylinder *40 HP @ 2200 RPM
*Rated 15% below engine manufacturers' maximum HP rating.	
TRANSMISSION, Type	**Heavy Duty Synchro-Mesh**
Speeds	4 forward
HOIST, Type	**Reduction gear**
Drum Dimensions	9½ in. (241 mm) diameter, 5-1/8 in (130 mm) long
Drum Capacity (½" cable)	190 ft. (58 m) 90 ft. (27.4 m) cable supplied with drill
Bare Drum Line Speeds**	84, 172, 316, 530 ft. (26, 52, 96, 162 m) per minute
RANGE SELECTOR, Type	**Sliding gear**
Ranges	Low, high, neutral
Number of Bit Speeds	8 forward
HYDRAULIC PUMP, Type	**Variable volume**
Volume	0-12 gallons (0-45 liters) per minute
Maximum Pressure	1000 psi (70 Kg per square cm)
HQ 3-7/8-IN. HYD. HEAD	**Twin-cylinder type**
Spindle I.D.	3-7/8 inches (98.4 mm)
Hydraulic Cylinder I.D.	3½ inches (88.9 mm)
Feed Length	24 inches (610 mm)
Angle Range	360°
NQ 3-INCH HYD. HEAD	**Twin-cylinder type**
Spindle I.D.	3 inches (76 mm)
Hydraulic Cylinder I.D.	3½ inches (88.9 mm)
Feed Length	24 inches (610 mm)
Angle Range	360°

	Stub Shaft Power Take-Off	Air-cooled Gasoline Engine	Water-cooled Diesel Engine	Air-cooled Diesel (Deutz)
OVERALL DIMENSIONS				
Width	42 in. (107 cm)	42 in. (107 cm)	42 in. (107 cm)	42 (107 cm)
Length	96½ in. (244 cm)	103 in. (261 cm)	103 in. (261 cm)	96½ in. (244 cm)
Height	57 in. (145 cm)	57 in. (145 cm)	57 in. (145 cm)	57 in. (145 cm)
APPROX. WEIGHT Net				
HQ 3-7/8-In. Hyd Head	2400 lbs (1090 Kg)	3015 lbs (1370 Kg)	3305 lbs (1500 Kg)	3230 lbs (1460 Kg)
NQ 3-In. Hyd. Head	2280 lbs (1035 Kg)	2895 lbs (1315 Kg)	3185 lbs (1450 Kg)	3110 lbs (1410 Kg)
For Domestic Shipment				
HQ 3-7/8-In. Hyd. Head	2810 pounds	3425 pounds	3715 pounds	3640 pounds
NQ 3-In. Hyd. Head	2700 pounds	3310 pounds	3600 pounds	3525 pounds
For Export				
HQ 3-7/8-In. Hyd. Head	3100 lbs (1410 Kg)	3715 lbs (1688 Kg)	4005 lbs (1820 Kg)	3930 lbs (1783 Kg)
NQ 3-In. Hyd. Head	2990 lbs (1360 Kg)	3600 lbs (1636 Kg)	3890 lbs (1765 Kg)	3815 lbs (1730 Kg)
CUBIC DISPLACEMENT				
Crated for Export	160 cu.ft(4.5 cu.m)	170 cu.ft(4.8 cu.m)	175 cu.ft(5 cu.m)	170 cu.ft(4.8 cu.m)

Accessory equipment

CATHEAD, Type	Topside
Spool Diameter, Length	8 in. (203 mm) diameter, 6½ in. (165 mm) long
Bare Spool Speeds**	92, 189, 348, 584 ft. (28, 58, 106, 178 m) per minute
Approximate Weight	115 pounds (52 Kg)
WIRELINE HOIST, Type	**Built-in**
Drum Diameter, Length	7 in. (178 mm) diameter, 17 in. (432 mm) long
Drum Capacity	4200 ft. (1280 m) of 3/16 inch (4.76 mm) wire rope
Bare Drum Speed**	416 feet (127 m) per minute
Approximate Weight	250 pounds (113 Kg)
RETRACTION KIT	**Hydraulic**
Travel Length	13 inches (330 mm)
Approximate Weight	60 pounds (27 Kg)
BV-3420 MAST, Type	**Vertical or angle**
Rod Length Capacity	20 feet (6.1 m)
Approximate Weight	1900 pounds (862 Kg)
AUTOMATIC CHUCK, Type	Spring-loaded, hydraulically released
Capacity	EW rods through HQ rods/NW Casing
Jaws	Tungsten Carbide insert type

**Based at engine speeds of 2200 rpm. For Stub-Shaft model, speeds will vary according to power unit used.

Forward Bit speeds

	Engine RPM	Low Range RPM	High Range RPM
HQ 3-7/8" HYD. HEAD	2200	20, 41, 74, 124	211, 438, 803, 1350
	1800	16, 33, 60, 101	172, 357, 653, 1105
	1100	10, 20, 37, 62	105, 219, 401, 675
NQ 3" HYD. HEAD	2200	28, 56, 102, 170	290, 600, 1100, 1850
	1800	22, 45, 82, 139	236, 490, 900, 1510
	1100	14, 28, 51, 85	145, 300, 550, 925

Bulletin 1600E Bp 5M 3/81

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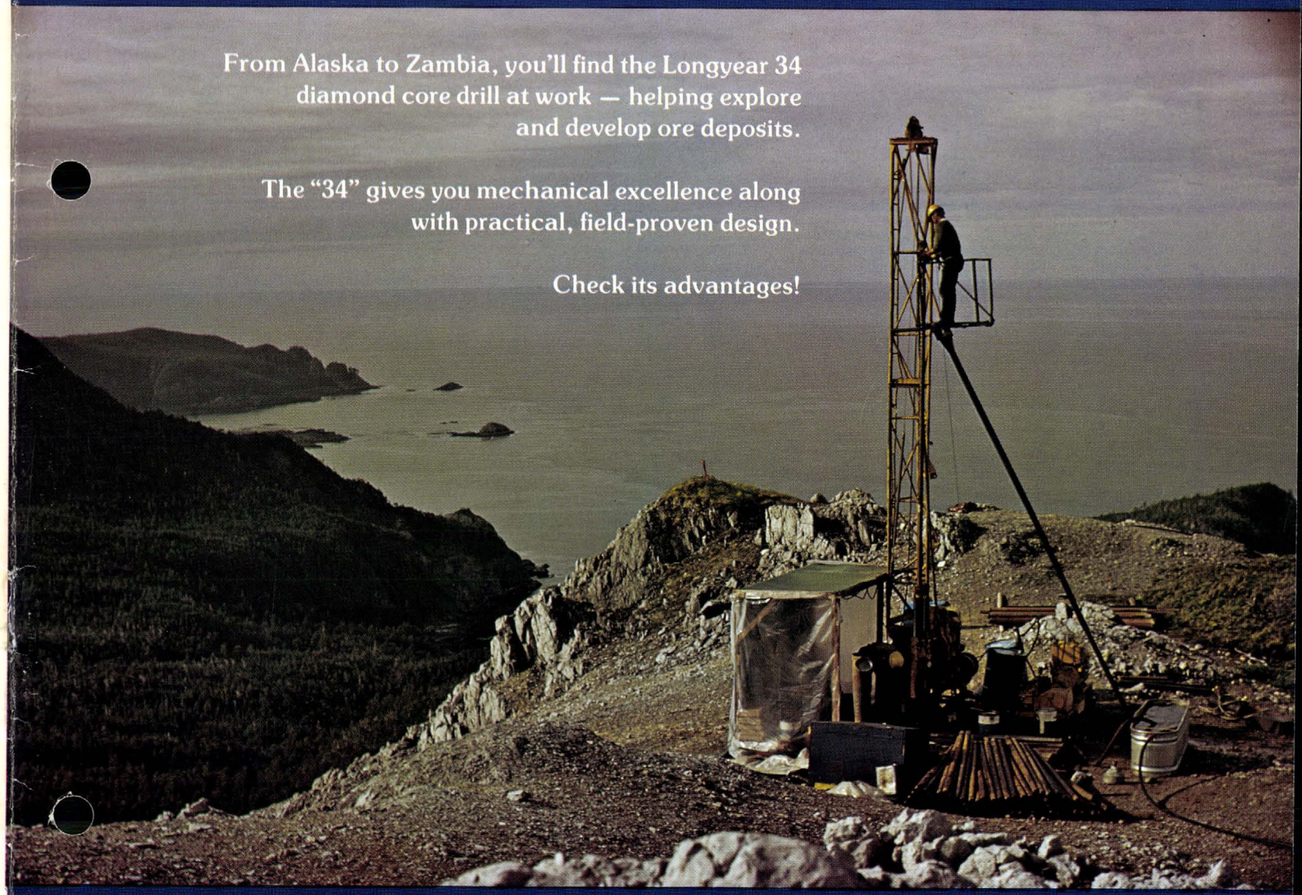
The "34" gives you mechanical excellence along with practical, field-proven design.

Check its advantages!



Examine the features of the Longyear 34 drill

Hoist clutch — hydraulically operated, internal-expanding clutch is smooth-acting, easy to operate and inexpensive to maintain. Free-spinning drum lets hoisting plug return to the operator by its own weight. Completely enclosed for all-weather protection.

Power — modular design provides a choice of dependable diesel or gasoline engines. Air or electric power are available on special order. Stub-shaft units are also available for customer installation of power unit.

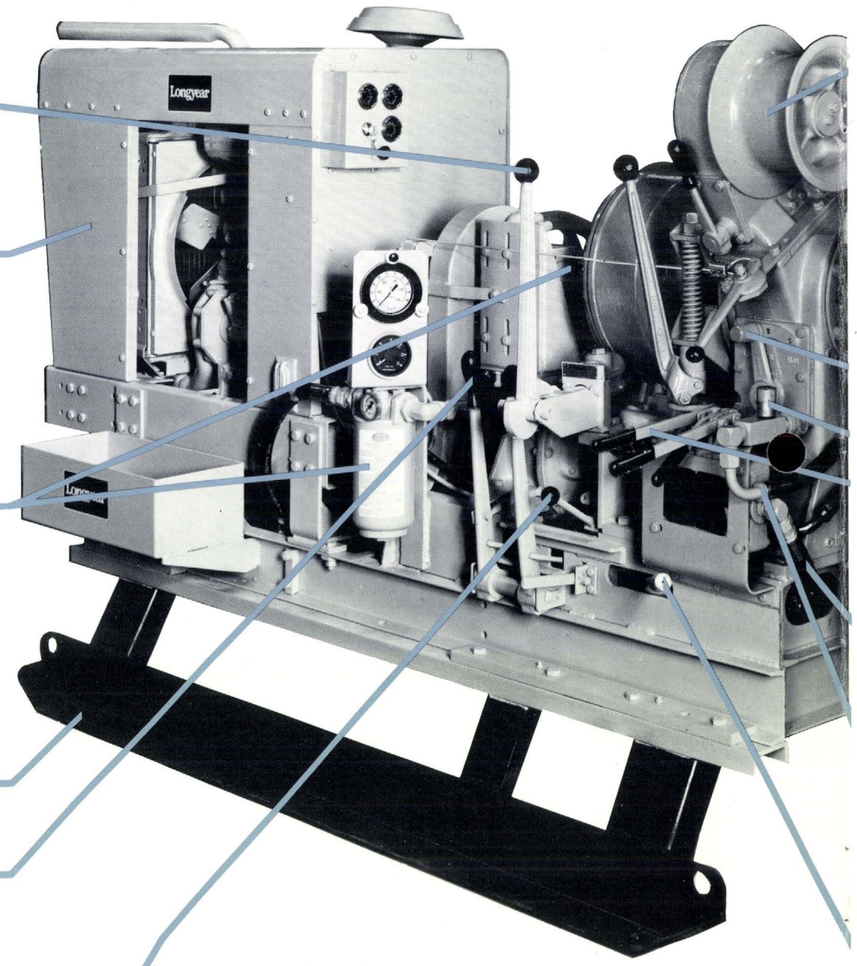
High-capacity hydraulic system — live hydraulic system provides for operation of hydraulic components when drill clutch is disengaged. Variable volume, vane-type pump delivers exactly the amount of oil required, thus overheating, foaming of oil and horsepower requirements are minimized. An efficient oil filter is provided to protect the hydraulic system.

Self-propelling attachment — this option provides the necessary fairleads, sheaves and rollers to allow the drill to be moved under its own power by using the hoisting cable.

Skid — welded structural steel construction provides long life under severe operating conditions. Modular design permits easy transfer of drill from skid to truck-mount and vice versa.

Flexible coupling — compensates for minor misalignment and cushions shocks imposed by drilling.

Transmission — synchro-mesh. Four forward speeds. Combination of speed range selector and 4-speed transmission provides the correct bit speed for any drilling situation without the need for changing bevel gears. There are 8 usable bit speeds for each throttle setting. By simply shifting a selector lever, the operator can select higher drilling speeds when using diamond bits and lower speeds for roller or drag bits . . . assuring the most efficient engine and drilling performance on any job.



Drill depth Guidelines

Drill rod size	Feet	Meters	Drill rod size	Feet	Meters
AQ Wire Line	1700	519	AW*	1600	488
BQ Wire Line	1400	427	BW*	1300	397
NQ Wire Line	1100	336	NW*	1000	305
HQ Wire Line	700	214	HW*	600	183
BCQ Wire Line	1600	488	CHD76	1000	305
NCQ Wire Line	1275	389	CHD101	650	198
HCQ Wire Line	950	290			

*DCDMA upset wall tubing.

	Skid mounted		Vehicle mounted **Angle mast, 20 foot**		Vehicle mounted **Vertical mast, 20 foot or 30 foot**	
I	**Model**	**Description**	**Model**	**Description**	**Model**	**Description**
	34SN 34SH	Drill Unit With 3″ Hydraulic Head Drill Unit with 3-7/8″ Hydraulic Head Units include Transmission, Drum Hoist, Speed Range Selector, 90′ Single Part Hoisting Cable.	34TA2N 34TA2H 34UA2N 34UA2H	Truck Mtd. Drill, 3″ Head, 20′ Mast Truck Mtd. Drill, 3-7/8″ Head, 20′ Mast Trailer Mtd. Drill, 3″ Head, 20′ Mast Trailer Mtd. Drill, 3-7/8″ Head, 20′ Mast Units include Mast Raising Cylinder, Truck Bed or Trailer Mounting, Transmission, Drum Hoist, 90′ Single Part Hoisting Cable, Retraction Price does not include truck or trailer.	34TV2N 34TV2H 34TV3N 34TV3H 34UV2N 34UV2H	Truck Mtd. Drill, 3″ Head, 20′ Mast Truck Mtd. Drill, 3-7/8″ Head, 20′ Mast Truck Mtd. Drill, 3″ Head, 30′ Mast Truck Mtd. Drill, 3-7/8″ Head, 30′ Mast Trailer Mtd. Drill, 3″ Head, 20′ Mast Trailer Mtd. Drill, 3-7/8″ Head, 20′ Mast Units include Mast Raising Cylinder, Truck or Trailer Bed, Transmission, Drum Hoist, 90′ Single Part Hoisting Cable, Retraction. Price does not include truck or trailer.
II	0 GW4D F31 JD3	No Power Unit (Stub Shaft) Wisconsin air cooled gas engine Air Cooled Deutz Water Cooled John Deere Diesel	0 GW4D F31T JD3T	No Power Unit (Stub Shaft) Wisconsin air cooled gas engine Air Cooled Deutz Water Cooled John Deere Diesel	0 GW4D F31T JD3T	No Power Unit (Stub Shaft) Wisconsin air cooled gas engine Air Cooled Deutz Water Cooled John Deere Diesel
III	NM HM NA HA	3″ Mechanical Chuck 3-7/8″ Mechanical Chuck 3″ Automatic Chuck 3-7/8″ Automatic Chuck	NM HM NA HA	3″ Mechanical Chuck 3-7/8″ Mechanical Chuck 3″ Automatic Chuck 3-7/8″ Automatic Chuck	NM HM NA HA	3″ Mechanical Chuck 3-7/8″ Mechanical Chuck 3″ Automatic Chuck 3-7/8″ Automatic Chuck
IV	0	No Selection	0 FS IS IT	No Selection Ford Single Axle International Single Axle International Tandem Axle	0 FS IS IT	No Selection Ford Single Axle International Single Axle International Tandem Axle
V	C R W SP M A 22 24 26 F K KH NSG HSG	Cathead Hydraulic Retraction**5 Wireline Hoist (Built-in) Self Propelling Unit BV-3420 Mast Angle Hole Attachment, BV-3420 Mast**4 Wireline Attachment, BV-3420 Mast Cathead Attachment, BV-3420 Mast Mast Lighting Harness Blank Bore Flex Coupling Instrumentation Kit 3″ Instrumentation Kit 3-7/8″ Head Guards 3″ + Head Guards 3-7/8″ +	C WT W AT A 11 22 24 26 HJA SJA F K KH NSG HSG	Cathead Wireline Hoist (truck only) Wireline Hoist (trailer only) Angle Hole Attachment, 3420 Mast**4 (truck only) Angle Hole Attachment**4 (trailer only) Drilling Fluid Pump Remote Control Wireline Attachment, 3420 Mast (Sheave) Cathead Attachment, 3420 Mast (Sheave) Mast Lighting Harness Hydraulic Drilling Jacks (truck only) Screw Jacks (truck only) Blank Bore Flex Coupling Instrument Kit 3″ Instrument Kit 3-7/8″ Head Guards 3″ + Head Guards 3-7/8″ +	C WLO 3S 11 12 26 HJV SVJ 105 130 170 F K KH NSG HSG	Cathead Wireline Hoist Triple Line Sheave Assembly Drilling Fluid Pump Remote Control Traveling Block W-shackle Mast lighting Harness Hydraulic Drilling Jacks Screw Jacks Hoisting Cable Other than Std. 105′ 2 part for 20′ Mast 130′ 2 part for 30′ Mast - or 3 part for 20′ Mast 170′ 3 part for 30′ Mast Blank Bore Flex Coupling Instrument Kit 3″ Instrument Kit 3-7/8″ Head Guards 3″ + Head Guards 3-7/8″ +

FOOTNOTES: **4 Must be added, **5 Must be added if Option M is selected, + Available as standard equipment on drills sold in U.S.

Chuck jaw sets & bushing for mechanical chuck

DRILL ROD SIZE		E	EW	A	AW, AQ	B	BW, BQ	N	NW	NQ	HQ
Mechanical	Drive Rod Bushing	18980	18976	18979	18975	18978	18974	18977	18973	18972	N/A
Chuck 3″	Chuck Jaw Set	15862		15863		15864		15865		15870	N/A
Mechanical	Drive Rod Bushing	25181	25182	25183	25184	25185	25186	25187	25188	25189	25147
Chuck 3-7/8″	Chuck Jaw Set	25820		25823		25826		25829		25832	25169

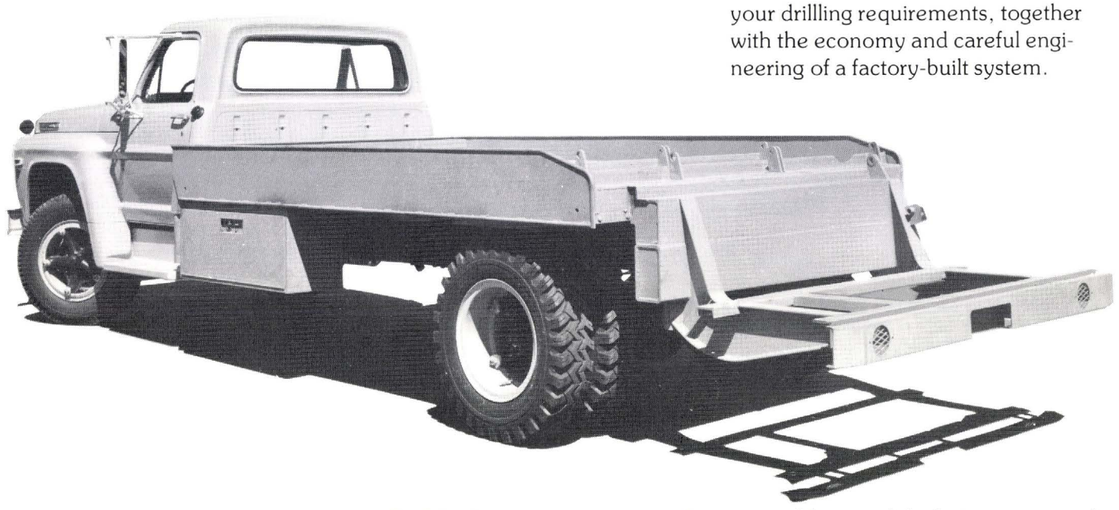
Chuck jaw sets & bushings for automatic chuck

Size		EW	AW	AQ	BW	BQ	NW	NQ	HW, HQ, HWY
Chuck Jaw Set (3 Jaws)	Rod	38456	38458	38458	38460	38462	38463	38465	38464
	Casing	38457	38459	—	38461	—	38464	—	—
Hood	Rod		29012		29013		29014		29015
Bushing	Casing	29012	29013	—	29014	—	29015	—	29015
3″ Drive Rod	Rod	29173	28364		28362		28359	28358	—
Bushing	Casing	29171	29170	—	28357	—	—	—	—
3-7/8″ Drive Rod	Rod	29179	28341		28338		28336	28335	28333
Bushing	Casing	29177	29178	—	28334	—	28333	—	—

Adaptability is standard equipment on every Longyear 34 drilling rig

The modular selection process

Standardization of basic drilling rig components allows flexibility in selecting the components to meet your drillling requirements, together with the economy and careful engineering of a factory-built system.



Change your Longyear rig to meet new drilling needs

Modular design gives you unmatched *adaptability* . . . an important benefit for as long as you own your Longyear drill.

Module and mounting interfaces are standardized, so it is a simple matter to alter the configuration of your drill rig as your drilling requirments change.

Many modular features can even be added or substituted in the field. Frames and mounting surfaces are predrilled to eliminate the fuss of complicated custom fitting.

The result is fast flexibility to meet changing needs, decreased drill downtime, and lower operating costs.

Select your rig

1 / Construct a model number by selecting one of the Basic Drill Assemblies. All subsequent selections must be made from the same vertical column.
Example: A 34 skid-mounted drill with 3-7/8" Head. **34SH**

2 / Select the Power Option from Table II.
Example: A John Deere Diesel **JD3**

3 / Select the desired Chuck from Table III.
Example: 3-7/8" Automatic Chuck **HA**

4 / Select the drive rod bushing and chuck jaw size by placing that size in the model number from the table.
Example: Drive Rod Bushing and Chuck Jaw size desired is HQ **HQ**

For information to order additional or different size sets, see table.

5 / You may select one of the five truck options offered by Longyear under Table IV, or you may furnish your own truck. Customer-furnished trucks must meet the following minimum specifications: single rear axle with 187" wheelbase and 120" cab to rear axle length OR tandem rear axle with 169" wheelbase and 102" cab to centerline of tandem axle length; 17,000# minimum rear axle capacity; 8:00 x 20 minimum tires; reinforced frame; 108" maximum height to top of cab; 60" maximum height from frame to top of cab. For skid and trailer mounted units no selection should be made.
Example: No Selection **0**

6 / Select accessory equipment as desired from Table V for best operation. (Longyear recommends the 535 RQ Pumping Unit available with either gas or diesel power, see price book for complete specifications). All trucks and trailers are furnished predrilled for mounting the pump and are equipped with a standpipe and discharge hose. Other ancillary equipment such as the suction hose and water swivel hose should be selected from the Longyear Catalog.
Example: Cathead, Hydraulic Retraction, Wireline Hoise (Drill Mount) and Self Propelling. **C,R,W,SP**

For example the unit model number is: **34SH-JD3-HA-HQ-0-C,R,W,SP** which describes the entire drill.

Automatic chuck — an optional feature which eliminates the manual chucking operation to increase drilling efficiency and operator safety.

Cathead — an optional feature for drive hammer operation, general handling and lifting tasks.

Hydraulic swivelhead — available in 3" size for rods through NQ size or casing through BW size, or 3-7/8" for rods through HQ size or casing through NW size. Incorporates twin (3½") hydraulic cylinders with a full 24" stroke.

Safety Headguards — are designed to improve the safety of the Driller's and Helper's working environment. Expanded metal front and rear guards provide an effective shield around the rotating spindle of the drill head, preventing potential injury due to loose clothing, rags or tools getting caught in the rotating components. The guards move together with the drill head to render complete protection during the entire stroke of the swivelhead. Safety Headguards may be ordered factory installed on new drills or in kit form for field installation on existing Longyear rigs.

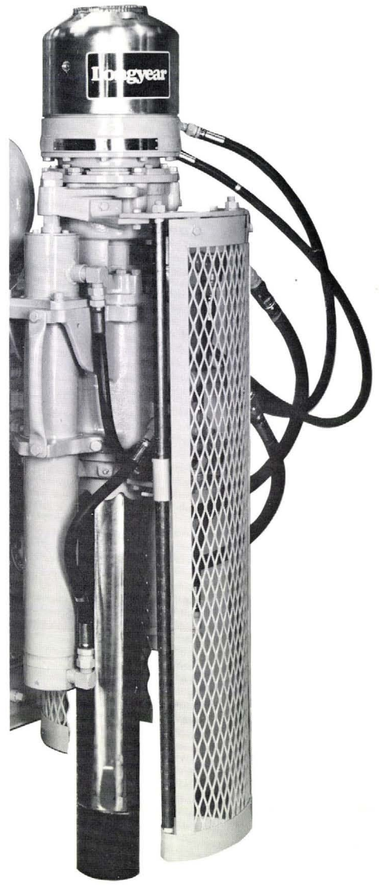
Speed range selector — for selecting high or low range swivelhead rotating speeds.

Feed control — positive control of weight on the bit and rate of advance is accomplished by bleeding oil from the lower end of the feed cylinders through a needle type control valve. A quick-return circuit is provided for raising the drive rod to re-chuck. The directional control valve used to control the hydraulic head incorporates four independent valve positions: up, down, neutral and float. At shallow depths, the directional control valve should be set in a down position, where full hydraulic pump pressure can be applied above the pistons to provide bit weight. At greater depths, set the directional control valve in float position, and the weight of the drill string can be employed to provide bit weight, without the necessity of applying hydraulic pressure above the pistons. Advantages: less horsepower required . . . cooler oil . . . less wear.

Hydraulic retraction — this option features a full 13" travel giving 10" minimum hole clearance.

3-spool, 4-way hydraulic valve — simplifies installation and minimizes the cost of adding extra hydraulic accessories. When needed, accessories are simply connected to receive full hydraulic power.

Overcenter clutch — the overcenter clutch may be disengaged for long periods of time while engine is running without creating undue heating and wear.



Swivelhead

Longyear hydraulic swivelheads have accurate control of bit pressure and rate of advance. Variable-volume pump delivers correct volume of oil to the head for efficient advance of bit in constantly changing rock formations.

Large cylinders provide powerful bit pressure and rod pull plus fast chuck return. Wide spacing of cylinders and guide rods give excellent rigidity and smooth operation.

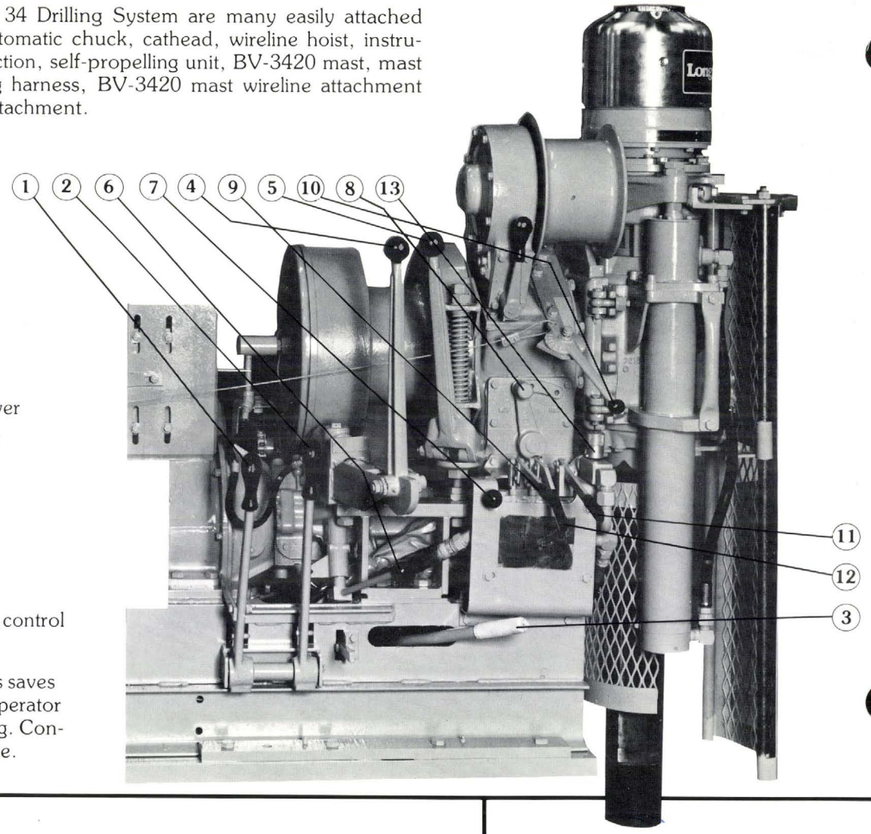
"34" drills can be supplied with either the NQ (3-inch) or HQ (3-7/8-inch) hydraulic swivelheads. The NQ will pass NQ wireline, NW rods or BW casing. The HQ will pass HQ wire line, HW rods or NW casing.

The HQ head (shown above) features a brass measuring rod scaled in inches.

Special features, optional equipment

Available with the Longyear 34 Drilling System are many easily attached accessories which include automatic chuck, cathead, wireline hoist, instrumentation kit, hydraulic retraction, self-propelling unit, BV-3420 mast, mast raising cylinder, mast lighting harness, BV-3420 mast wireline attachment and BV-3420 mast cathead attachment.

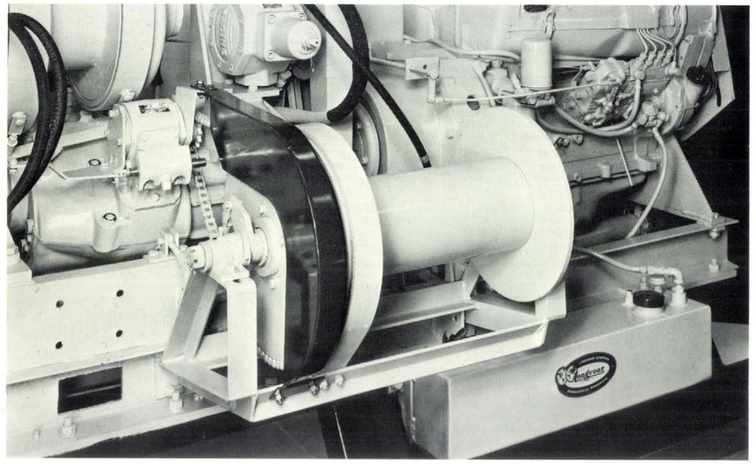
34 drill controls



1 Wireline hoist brake lever
2 Wireline hoist clutch lever
3 Main clutch lever
4 Hoist clutch lever
5 Hoist brake lever
6 Transmission shift lever
7 Wireline hoist engaging lever
8 Speed range selector lever
9 Retraction lever
10 Engine throttle control
11 Swivelhead control lever
12 Control lever for optional, automatic chuck
13 Hydraulic swivelhead feed control valve

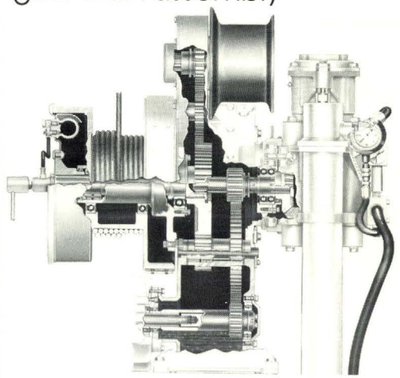
Central grouping of all controls saves waste motion and allows the operator more hours of profitable drilling. Convenient location is shown above.

Wireline hoist



A built-in wireline hoist can be supplied as accessory equipment. The drum assembly mounts securely on the skid frame and features maintenance free sealed ball bearings. It is driven from the transmission power take-off by roller chain. The power take-off can be disengaged when drilling. The "built-in" feature eliminates the nuisance of a separate hoist unit while giving the operator "finger-tip" control from the central control station.

Transmission and hoist gear train assembly



High quality, anti-friction bearings, used throughout, require less attention and have a long service life.

Oil bath system lubricates gears and other rotating parts. Grease and oil fittings are easily accessible.

BV-3420 mast

For drilling vertical or angle holes — combination vertical-and-angle hole mast features advanced design for efficient drilling operations. Adequate capacity to handle rods in either vertical or angle hole position at the rated capacity of the drill.

Designed so that forces developed when hoisting drill string are confined within the drill mast assembly. There is no tendency for the drill to lift off the ground.

ROLLER BEARING SHEAVES in heavy-duty crown block.

ACCOMMODATES PULL OF 20-FOOT ROD LENGTHS. Mast is extremely stable through entire range of drilling positions.

2-PART MAIN POLE is flanged and bolted together. Easily dismantled for transporting.

ROD RACK. Adequate capacity to store rods to the rated capacity of the drill.

WORKING PLATFORM. Swivels to remain horizontal as mast is angled. Platform has access from built-in ladder provided with the mast.

QUICK-DETACH PINS are used throughout at adjustment points.

MASTS — raised and lowered by hoist cable or by optional hydraulic cylinder. For optimum safety and ease of operation, the hydraulic cylinder is recommended.

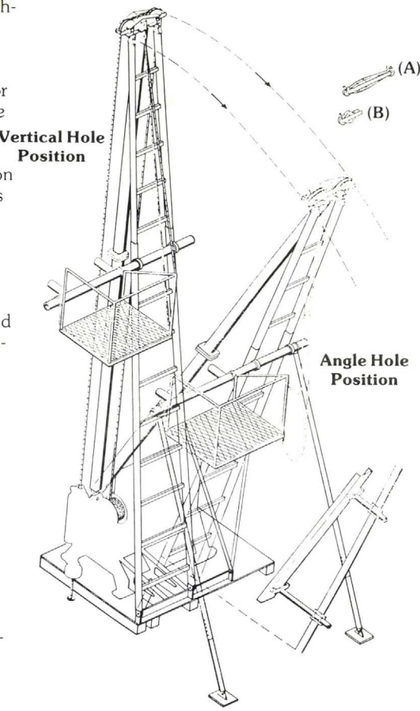
RETRACTION. Mast allows drill retraction of up to 13 inches. Crown sheave remains in perfect alignment with hole even when drill is retracted and when mast is in any operating position.

BACKSTAY LEGS telescope and adjust with quick-detach pins when mast is angled or lowered. Purchased as accessory equipment with rod slide.

ACCESSORY WIRELINE SHEAVE ATTACHMENT is purchased separately for use with the wireline hoist. **(A)**

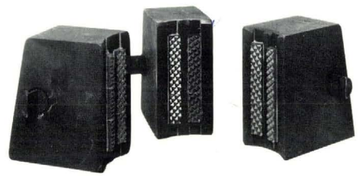
ACCESSORY CATHEAD SHEAVE ATTACHMENT is purchased separately for use with cathead. **(B)**

ROD SLIDE for ease in feeding rods through the swivelhead when angle-hole drilling. Rod slide and backstay legs are accessory items and are specified as angle-hole attachments. Neither is necessary for vertical hole drilling.



Automatic chuck

Optional, automatic chuck is spring loaded and hydraulically released. Advantages are increased footage, smoother rotation, safer operation and operator ease. Chuck has three hardened steel chuck jaws with Longyear designed tungsten carbide inserts to grip rods firmly.



Instrumentation kit

The instrumentation kit gives a visual reading of the drill string RPM and bit weight. The kit contains a 12V DC electric tachometer and a hydraulic pressure gauge.

A dial ring on the pressure gauge is "zeroed" with the bit just off bottom. When drilling commences, the load transferred to the bit can be read directly in pounds or kilograms on the dial.

The hydraulic gauge is equipped with an oscillation damper for easier, more accurate reading.

The accurate readings obtained with the kit enable the driller to maximize penetration rates and extend bit life.