

Hawaii Play Fairway	Report for:	6:00 am	5/13/2019	to 6:00 am	5/14/2019	Well No.:	Lanai #10
GENERAL					Report No.:	1	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716597.00 m E, 2297546.00 m N				Current Depth (ft):	~1455	
	Lat/Long: 20.765103°N -156.919493°W				Planned TD (ft):	NA	
	Elevation (ft): 1,240				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Day Shift:		
	POST 602, 1680 East-West Rd, Honolulu HI 96822				Night Shift:		
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: Site preparation; organization of logistics for moving equipment to site; work with Lanai contacts to arrange support services.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments

PLANNED OPERATIONS

site prep and rig up

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Meet Doug Stephenson of Pulama Lanai at HNL airport (at 17:00) regarding moving equipment to site and arranging site preparation (staking, clearing, leveling) activities. We are woking with an existing bore that extends to an approximate depth of 1455'. Site preparation begins tomorrow.

Hawaii Play Fairway	Report for:	6:00 am	5/14/2019	to 6:00 am	5/15/2019	Well No.:	Lanai #10
GENERAL					Report No.:	2	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716597.00 m E, 2297546.00 m N				Current Depth (ft):	~1455	
	Lat/Long: 20.765103°N -156.919493°W				Planned TD (ft):	NA	
	Elevation (ft): 1,240				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Day Shift:		
	POST 602, 1680 East-West Rd, Honolulu HI 96822				Night Shift:		
Supervisor:	Ron Fierbach				Note: All depths ground		
	ron.m.fierbach@gmail.com				level.		

OPERATIONS

Primary activities: Site preparation; organization of logistics for moving equipment to site; work with Lanai contacts to arrange support services. Met with Pulama Lanai Utilities (Joy and Duke) to discuss site and delivery of containers; arrangement of water for site. Spoke with Doug (who handles heavy equipment work - he arranged for site work). Met with PL Logistics re: delivery of containers currently on island - arranged for delivery to site. Flagged out 180'X180' site boundaries.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

site prep and rig up

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Site has been cleared of brush and scraped clean. Sloping area around wellhead has been built up with soil and is relatively flat. Dozer and excavator are at site and working to grade site to flat and slightly sloping. Former use of site has windrows for pineapple...

Hawaii Play Fairway	Report for:	6:00 am	5/15/2019	to 6:00 am	5/16/2019	Well No.:	Lanai #10
GENERAL						Report No.:	3
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep and logistics for water.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Surface work was continuing – excavator scraping surface – fill material is being moved in for the well pad so that we will have a stable surface. Met with Malcolm Ross and James Jackson who were touring the drone site nearby and collecting some drone imagery of the drill site. Barge was not able to offload containers but did offload the drill rig. Arranged for moving the rig from the dock to the solar farm staging area for Thursday morning.

Met with Joy and Duke about water supply. We are not able to truck brackish water in their freshwater trucks – we will have to arrange to acquire brackish water by other means – their permits do not allow us to purchase potable water from them for drilling; we can purchase brackish water from them for that purpose. Talked with SunBelt leasing company: no trucks available for several weeks – the one that may become available is 2000 gals. Probably not feasible for us. Investigated whether there was any existing data on irrigation pipelines in the area that could be adapted to transport water from the reservoir to our site – no data available and Joy indicated that the condition of the old irrigation pipelines was so questionable that we shouldn't even attempt that. Had a look at some of the abandoned irrigation lines – open pipes exposed at the surface – horizontal runs are buried ~6' below surface and would be difficult to trace or service – abandon that idea. Will need to install a new line.

Pulled small genset and grinder with cutting wheels from shop container – took them to site and cut tack welds on the well head cover and removed it. Was able to see the bottom of the casing ~13' below the top of the casing; the diameter of the hole reduces down immediately below the casing from 27" diameter to approximately 18" – difficult to determine how far down there is a further reduction in diameter.

Went to site with Duke to look at prospective path for water line from reservoir – he will meet with his shop folks Thursday to discuss options for tapping into reservoir.

Met D Mulliken and B Alesna at airport and dropped them at their quarters.

Hawaii Play Fairway	Report for:	6:00 am	5/16/2019	to 6:00 am	5/17/2019	Well No.:	Lanai #10
GENERAL					Report No.:	4	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep and logistics for water.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Met with Duke and Curtis at shop to discuss how to get water from the reservoir to well head. They will tap into the feed line for the reservoir – we will purchase 2" HDPE line to run water to site – pump the water using our gasoline trash pump. Went to shuttle yard to pull trash pumps – took them back to shop to show Curtis what our connections looked like – so that we could connect our pump to the line out. Met with truck driver at dock to pick up the Rig. Mobilized the rig from dock up to Solar Farm and parked there.

Went back out to well site where site work was continuing – more loads of crushed concrete delivered – having them level the pad around the wellhead and feather it out down to grade behind the dog house.

D, B, and myself measured out the distance, cross country, from the location of the water tanks at the site out to the tapping point at the reservoir. A good deal of brush and vegetation along the route so distance is approximate: 3100' – elected to purchase 3500' of line.

Duke offered to have the construction crew run the grader along a straight rout from the edge of the site to the road that encircles the reservoir to make it more feasible to run the water line. We will likely use the gradall to run that line.

Crew then worked to set up a layout of the site with specific containers being spotted as appropriate to their contents and function. This was to ensure that, when the crane was available on Friday we would be able to most efficiently get the containers spotted. Returned to Lanai City and met with Doug about the crane tomorrow – indicated that it was likely to be at the site at about 10:00 to 11:00.

Returned to site and spoke with AJ about the site and pad – he has indicated that he will have nine more loads of concrete debris brought to the site to better feather out the pad to the SE grade for placement of the containers.

The crew inspected the site and fill material – which is crushed scrap concrete – and pulled out rebar and reinforcing mesh wire that could puncture the tires of the rig or Gradall.

Hawaii Play Fairway	Report for:	6:00 am	5/17/2019	to 6:00 am	5/18/2019	Well No.:	Lanai #10
GENERAL					Report No.:	5	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep and logistics for water.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Crane was delayed; brought 20s over and off loaded with fork lift; container with pier blocks didn't make it so have to wait on placing the 40s. Site grading and filling continued through the day. PL cleared brush along path for placement of the water line – it is possible that we are slightly downslope of the reservoir and will be able to get water by siphon. 40s were brought down on chassis and placed for setting when crane is available. Duke ordered HDPE water line in morning – should be here Wednesday next week.

Hawaii Play Fairway	Report for:	6:00 am	5/18/2019	to 6:00 am	5/19/2019	Well No.:	Lanai #10
GENERAL						Report No.:	6
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep and logistics for water.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Began offloading essential items from the containers and began organizing supplies in appropriate locations. PL made one of their gradalls available to us which allowed us to move some of the heavier equipment (mixer, power pack, generator set) out of the containers and place them where they will be used on the site. Pulled the dog house out and got it placed at the wellhead. We were able to block up and level the 20' containers to protect the undersides from moisture and keep the containers from distorting. Moved the water tank steel and drilling supplies out of the office container and begin to set that up for long term use. Spent some more time picking steel out of the concrete fill.

Hawaii Play Fairway	Report for:	6:00 am	5/19/2019	to 6:00 am	5/20/2019	Well No.:	Lanai #10
GENERAL					Report No.:	7	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep and logistics for water.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Assembled the steel water tanks and rigged up for placement. Decision was made to place the water tanks at the bottom of the site in an effort to allow water to flow to the tanks by siphon from the brackish water reservoir. Used the PQ drill pipe as spreader bars and ratchet straps as lifting straps for the tanks – 4 lift points on the steel rings allowed us to move them without distorting them.

Checked with Marilou Bello – the last 20' came in today as well as the gradall. Arranged for transport from the shuttle facility and the dock to our site for Monday.

Hawaii Play Fairway	Report for:	6:00 am	5/20/2019	to 6:00 am	5/21/2019	Well No.:	Lanai #10
GENERAL					Report No.:	8	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep and logistics for water.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Met with the dozer operator and informed him of our intent to revise planned location of the water tanks; he immediately went to work levelling the field road at the base of our site to the required width for placement of the tanks. Met with AJ and informed him that we didn't need additional site work; he released the dozer and other heavy equipment operators from the site.

Checked with Marilou Bello on the prior day's barge delivery – the 20' from PTA and gradall were present but no sign of the 40' unit from Salt Lake. Contacted YB shipping coordinator and asked to do their best to get it onto the Tuesday barge to Lanai. If that fails, then will have to request that it be dropped on Friday...

Went down to the dock to retrieve the gradall; brought to the site on a trailer. The 20' container with concrete pierblocks was delivered to the site and placed.

Moved the water tanks down to the field road and placed them onto the cleared area. Prepped the base of the tanks (soil infill at tank edges and covered with carpet) and installed the liners. Began moving supplies into the shop from the PTA 20'. Moved the pierblocks out and prepped for placement of the 40's.

Ron Fierbach arrived – flight delayed, didn't get in until 22:30.

Hawaii Play Fairway	Report for:	6:00 am	5/21/2019	to 6:00 am	5/22/2019	Well No.:	Lanai #10
GENERAL						Report No.:	9
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep and logistics for water.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
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LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Reviewed placement of the equipment and containers with Ron. All good... discussed how to set up casing support equipment around the well head; plumbed the bore down into the rock below the casing and confirmed diameter of ~14". Crane was available for placement of the 40s. Operator and helpers showed up at the site and we worked with them to pick up and place the 40' containers that were on site. Doug indicated that the crane would be available tomorrow to pick and place the last 40' – we need that container to set up the casing hangers. Began unloading the components of the dog house and assembled that over the hole. Moved the rig from the solar facility over to the pad and lined it up over the hole.

Hawaii Play Fairway	Report for:	6:00 am	5/22/2019	to 6:00 am	5/23/2019	Well No.:	Lanai #10
GENERAL						Report No.:	10
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
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Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep and logistics for water.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
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LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Spent most of the day working on servicing the rig – assembled the racking board on the mast; fabricated some new guards for the floor of the doghouse, replaced some gauges on the control consol. Brought all the vehicles from the port so we have our full complement of vehicles for the crew and support staff.

Had an update call with DOE to bring them up to date on progress to the present time.

Working with suppliers for a new set of seals for the hydraulic motor driving the mud mixer pump – in progress, awaiting confirmation of the Geartec part number.

Container was not yet available; spoke with Duke who had left instructions that poly pipe be delivered to the site as soon as it was recovered from Young Brothers. His crew will string the 3000' of pipe from the reservoir over to site. Spoke with Marilou Bello and was told that container could be delivered to site tomorrow. Crane operators may be available tomorrow as well.

Hawaii Play Fairway	Report for:	6:00 am	5/23/2019	to 6:00 am	5/24/2019	Well No.:	Lanai #10
GENERAL						Report No.:	11
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
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Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: site prep; logistics for water; preparing equipment for setting up the site.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
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LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Spend a good part of the day installing the water line from the reservoir down to the site – supplier provided an incomplete order – 2700' of 2" rather than 3400 and we came up short – secured another 40' to complete the line from PL. Got water pumping at the source to our tanks. We're getting about 30 – 40 gpm with the one pump. Got partial tank by end of shift. Container finally showed up in the afternoon – no crane operator available until after the weekend. Started offloading essential items for setting up the wellhead – I-beam, casing hangers, few other items. Got the wellhead casing cut down to appropriate size. Cut lengths of I-beam for supporting the casing hangers. Donnie M. left for Hilo – will be short-handed for Friday.

Hawaii Play Fairway	Report for:	6:00 am	5/24/2019	to 6:00 am	5/25/2019	Well No.:	Lanai #10
GENERAL						Report No.:	12
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	1	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: Set up well head and rig-up over the hole. Preparing equipment to go into hole. Setting up for core processing and core management.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Completed fabrication of the well head casing support arrangement. Fabricated an extension to the doghouse floor for improved safety of the hands working with the pipe.

Pulled the used PQ casing from container – will start prepping that for going into the hole. Began offloading the blocking, mainland supplies, and casing from the SLC container using gradall – time consuming because everything has to be pulled from the back end of the 40. Spent some time sorting and stowing supplies.

Eric Haskins and two core helpers showed up early afternoon. Took them to housing and then site – they took supplies loaded in van down to core processing site and began setting up there.

Contacted Lua supplier – no call back... Contacted someone to do site blessing next week – no call back... contacted oil supplier – no call back...

Hawaii Play Fairway	Report for:	6:00 am	5/25/2019	to 6:00 am	5/26/2019	Well No.:	Lanai #10
GENERAL						Report No.:	13
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	2	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: preparing equipment to go into hole. Engine showing signs of malfunction; lining up service tech to evaluate engine for possible repairs. Setting up for core processing.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Finished offloading the 40' container. Started cleaning up tricone bit and collar. Picked up bit. Drill rig engine started blowing steam from valve cover casing. Diagnosis is that we may have a blown gasket; alternative is that we may have a cracked or damaged cylinder liner. If the former, then need head gasket replaced; if cylinder liner is damaged, then may need an engine overhaul. Contacted Donald Mulliken who will come over here tomorrow and bring a head gasket and begin top side tear down. Also ordered full top side gasket set in the event a rebuild is necessary. Called Julian Collins and Randy Curl to apprise them of the engine problems.

Pulled table for coring crew from container. Took it down to their site along with a couple of pallets of core boxes.

Hawaii Play Fairway	Report for:	6:00 am	5/26/2019	to 6:00 am	5/27/2019	Well No.:	Lanai #10
GENERAL					Report No.:	14	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	3	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: evaluating rig engine to determine source of moisture in engine. Reassemble engine after servicing.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
						NA

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Worked on breaking down rig engine in preparation for Mr. Mulliken arrival and diagnosis. He arrived at 11:30 in the morning and went to work on the engine. Pressure tested the coolant system; ran compression tests on all the cylinders; checked the valve cover vent valve; worked on the engine for several hours – everything checked out – checked valve cam clearances and adjusted to spec. Refilled the oil and started engine up. Diagnosis was that the valve cover vent valve filter was obstructing moisture discharge from the oil – needed to build pressure to get past the valve and be expelled – nothing wrong with the head gasket or cylinder liners. Engine ran well – no excessive moisture discharged and no evidence of moisture in the oil. He will send us a replacement breather valve/filter.

Discussed a spare replacement motor – likely to run ~\$30K – less than the cost of a week of downtime with crew standing by. Dan worked on logging unit to make it more transportable – put in a new cross bar and will build a hitch for it.

Hawaii Play Fairway	Report for:	6:00 am	5/27/2019	to 6:00 am	5/28/2019	Well No.:	Lanai #10
GENERAL						Report No.:	15
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:		extending cable tool hole
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:		1989
Well	Lanai Well 10				Days on Location:		4
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):		~1455
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):		NA
	Elevation (ft): 1,100				Hole Made Last 24hrs:		0
					Current Hole Size (in):		14
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground		
	ron.m.fierbach@gmail.com				level.		

OPERATIONS

Primary activities: preparing BHA and rod string to go into hole for rotary drilling at bottom to clear any debris and infill in preparation for cementing casing in place. Contract drillers arrived at site.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	9:00	make up BHA				NA
9:00	11:00	welding safety straps				
11:00	18:30	lower pipe to bottom				

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Starting into hole – needed to weld up some support equipment for the collar and bit so that we can get into the hole, secure those, then install foot clamp and run in crossover sub and PQ drill rod.

Service tech returned home.

Measured Sandvik drill rod – each stick is 3.0 meters – 9.8424' – long; helped Ron get the rod count and length worked out.

Welding straps on the collar to ensure that it doesn't come loose... Dog collar wrench disappeared – ordered new ones.

The KMA PQ pipe is English – 10' and we now have a mixed string.

Made up pipe and began lowering pipe into hole.

IDEA drillers (2) and hands (2) arrive at Lanai. Got them set up in their lodging and showed them where store and restaurants were located in town.



UNIVERSITY OF HAWAII AT MANOA **Daily Drilling Report**

Hawaii Play Fairway	Report for:	6:00 am	5/28/2019	to 6:00 am	5/29/2019	Well No.:	Lanai #10
GENERAL						Report No.:	16
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:		extending cable tool hole
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:		1989
Well	Lanai Well 10				Days on Location:		5
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):		~1455
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):		NA
	Elevation (ft): 1,100				Hole Made Last 24hrs:		0
					Current Hole Size (in):		14
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: Running into hole; drilling on bottom; pulling out of hole; training on endangered birds; forklift training for hands; site blessing.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	9:00	lower drill to bottom				NA
9:00	10:30	drill on bottom				
10:30	12:00	endangered bird training				
12:00	13:00	drill on bottom				not making progress; not enough weight
13:00	14:00	trip pipe				
14:00	18:00	forklift training				
18:00	18:30	site blessing				

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
						below grade where it terminates at the top of a smaller diameter hole

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Continue lowering to bottom; hit obstruction above bottom, pushed down to 1448' depth; drilled on bottom for several hours without any progress. Rocks in this borehole may well be dike rock and too hard for a tricone and single collar to penetrate. Abandon the drilling effort trip pipe out of hole.

Break for training on endangered birds: Hawaiian Petrel and Hawaiian Shearwater. All hands received training and guidance on critical times of transit over our area; how to respond; recommended that we use shielded lights for the rig – to the extent possible pointing down. After September is the most critical time for fledglings transiting the island to the ocean.

Return to site, continue pulling PQ string – all came out of the hole successfully. No evidence on the bit of what the obstruction was – buttons are intact – likely not enough weight.

Begin setting up to run casing – plan is to cement to the borehole walls.

Contacted Paradise Lua – regarding delivery of a porta john to the site; informed that driver would deliver the following morning. Break for forklift training for RCUH employees – required several hours since they will have to have training for both Class 5 and Class 7 machinery. During that interval, crane operators came by to pick and place last (now empty) 40’ container and move the crane to cement batching plant. Reverend Sol Kahilikolo arrived at the site to conduct a site blessing. Proceeded to follow his standard practice of visiting the corners of the site and then calling everyone together for blessing and guidance on working safely and collaboratively. All hands attended: Ron Fierbach, During forklift training, IDEA staff discussed approaches for running casing and cementing the casing in place the following day.

Hawaii Play Fairway	Report for:	6:00 am	5/30/2019	to 6:00 am	5/31/2019	Well No.:	Lanai #10
GENERAL						Report No.:	17
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	0	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	7	
					Current Hole Size (in):	14	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: securing the base of the temporary casing prior to starting to core.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	7:30	checking for grout				no grout/casing is free
7:30	11:00	check pipe for cementing plug				
11:00	14:00	build spear/recover plug				
14:00	16:30	weld coupling on casing				
16:30	18:00	lower PQ rod				
18:00	19:00	drill through boulder				obstruction held up casing and kept off bottom; hole is now clear
		run to bottom				

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary casing/liner for drilling through

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

What was thought to be an error in counting the rods turned out to be an obstruction near the bottom of the hole, preventing the casing from going to bottom. Cement was injected and just dropped to the bottom of the hole. We will run cement up around the bottom of the casing and drill to bottom with PQ tricone.

Hawaii Play Fairway	Report for:	6:00 am	5/31/2019	to 6:00 am	6/1/2019	Well No.:	Lanai #10
GENERAL						Report No.:	18
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	8	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	~1455	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	17	
					Current Hole Size (in):	5"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: clear bottom of hole; trip PQ pipe; cement bottom of PWT casing

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	12:00	drill with PQ tricone		1465		
12:00	14:00	realign/level drill rig				
14:00	16:00	trip PQ out and back in				trip in with open end
16:00	17:00	mix and place cement				
17:00	19:00	trip PQ out				

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary casing/liner for drilling through

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

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Hawaii Play Fairway	Report for:	6:00 am	6/1/2019	to 6:00 am	6/2/2019	Well No.:	Lanai #10
GENERAL					Report No.:	19	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	9	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	1517	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):	5"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: clean out bottom of hole and open hole to TD with tricone in preparation to begin coring; begin coring; equipment problems: wireline cable parted; transmission on the rotating head failed. Begin disassembly in preparation for repair.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	8:30	run in with PQ Tricone	1465			
8:30	12:00	drill with PQ Tricone	1465	1480		
12:00	13:30	wash hole; trip pipe	1480	1480		
13:30	17:30	run in PQ casing liner	1480	1480		
17:30	18:30	mix mud; run in HQ	1480	1480		
18:30	19:00	coring	1480	1484.8	4.8	
19:00	23:50	coring	1484.8	1507	22.2	wireline cable parted; repaired
23:50	2:30	coring	1507	1517	10	
2:30	7:00	standby for repair	1517			transmission on head failed

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary liner

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

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Hawaii Play Fairway	Report for:	6:00 am	6/2/2019	to 6:00 am	6/3/2019	Well No.:	Lanai #10
GENERAL						Report No.:	20
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	10	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	1517	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):	5"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: disassembly of chuck and drive for removal of the transmission which failed during the prior shift. Assessment shows that the failure was in the transmission - head seems to rotate normally after removal of transmission. No replacement unit on hand - likely will need shop rebuild. Limited access to vendors on a Sunday; no replacement transmissions are available from vendors contacted.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	standby for repairs				

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary casing/liner for drilling through
Surface	1465	4.5"	10.6			

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

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Hawaii Play Fairway	Report for:	6:00 am	6/3/2019	to 6:00 am	6/4/2019	Well No.:	Lanai #10
GENERAL					Report No.:	21	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	11	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	1517	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):	5"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: standby while replacement transmission is located. By the end of the day a prospective replacement transmission was located; will arrange for shipping from SLC to HNL tomorrow.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	standby for repairs				cleaning and servicing rig

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary casing/liner for drilling through
Surface	1465	4.5"	10.6			

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Spent the day contacting service companies for Funk transmissions (a common piece of equipment - company and licenses owned now by John Deere). Investigation revealed that these transmissions are not standard items: Boart Longyear modifies them for the LF230 - so limited supply. We were able to contact a network of drillers and service companies, one of which located a transmission that is thought to be compatible with our LF230 build.

Shipping to Lanai will require that we use Kamaka Air - the only air transport company that I can identify that will fly heavy items to Lanai.

Hawaii Play Fairway	Report for:	6:00 am	6/4/2019	to 6:00 am	6/5/2019	Well No.:	Lanai #10
GENERAL						Report No.:	22
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:		extending cable tool hole
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:		1989
Well	Lanai Well 10				Days on Location:		12
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):		1517
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):		NA
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):		5"
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: standby while replacement transmission procured and shipped; crew working to service the rig and break out excess drill string into 20' units. Replacement transmission was shipped from SLC to Honolulu.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	standby for repairs				cleaning and servicing rig
						breaking out 30' rods to 20' for shipping

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Quality Diamond Products shipped replacement transmission from Salt Lake City; plane was delayed; arrived at 16:30 hrs; picked up from Delta Air Cargo at 18:30 (too late to transfer to interisland air cargo carrier).

UNIVERSITY OF HAWAII AT MANOA

Daily Drilling Report

Hawaii Play Fairway	Report for:	5:00 am	6/5/2019	to 5:00 am	6/6/2019	Well No.:	Lanai #10
GENERAL					Report No.:	23	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	13	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	1517	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):	5"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547						
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Primary activities: replacement transmission received and installed;

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	8:45	standby for repairs				
8:45	12:00	install replacement				
12:00	14:00	repair lube pump				
14:00	17:00	CORING	1517	1547	30.6	finally
17:00	5:00	Coring	1547	1617	67.7	

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

New transmission provided to Kamaka Air Cargo at 05:30 for shipment; arrived t Lanai airport 08:30. Installed on the rig: everything was found to be compatible with original equipment. It was found that an oil pump had failed that may have been the ultimate cause of the transmission failure. Oil pump was replaced. Coring resumed with good progress for a short day - 100' from ~2:00 PM to 05:00 AM. Recovery is good: 98.3%

Hawaii Play Fairway	Report for:	6:00 am	6/6/2019	to 6:00 am	6/7/2019	Well No.:	Lanai #10
GENERAL					Report No.:	24	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	14	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	1517	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):	5"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	115°F/46°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

coring ahead at a very good rate. Core is well consolidated and we are getting good recoveries. We have full returns, reducing demand on gel and polymer. There is a fair bit of solids in the return mud which we are not set up to remove; we change out the mud after three or so core runs.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	1617	1686	69	100% recovery
19:00	7:00	coring	1686	1757	71	100% recovery

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
1617	1757	basalt: fairly dense, fractured; some secondary depo	minor; infilling of vesicles and fractures
		some clay (likely from ash deposits) weathered	not yet identified

SUPPORT ACTIVITIES/RELEVANT EVENTS

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Hawaii Play Fairway	Report for:	6:00 am	6/7/2019	to 6:00 am	6/8/2019	Well No.:	Lanai #10
GENERAL					Report No.:	25	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	15	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	1877	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):	5"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	121.5°F/49.7°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

coring ahead at a very good rate. Core is well consolidated and we are getting good recoveries. We have full returns, reducing demand on gel and polymer. There is a fair bit of solids in the return mud which we are not set up to remove; we change out the mud after three or so core runs.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	1757	1817	60	100% recovery
19:00	7:00	coring	1817	1877	60	100% recovery

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
1617	1757	basalt: fairly dense, fractured; night shift less so;	minor; decreasing mineralization
		some pahoehoe	in the deeper cores of last night

SUPPORT ACTIVITIES/RELEVANT EVENTS

temperature tool is going down next run - reported temp above is from yesterday's run; will update Temperature on recovery of next core run.

Hawaii Play Fairway	Report for:	7:00 am	6/9/2019	to 7:00 am	6/10/2019	Well No.:	Lanai #10
GENERAL					Report No.:	27	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	17	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2117	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	124.6°F/51.4°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

coring ahead with no major issues. Several short runs beginning in the later part of the day shift continuing into the night.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	1997	2057	60.5	0.5' of cave recovered
19:00	7:00	coring	2057	2117	60.7	0.7' cave recovered

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
1997	2117	basalt: mostly breccia; some variable size clasts of pahoehoe	minor but variable mineralization
		and a'a; possibly some dike material; later part of the day core	some zones showing extensive
		became highly broken up possibly related to dike	infilling of vesicles

SUPPORT ACTIVITIES/RELEVANT EVENTS

temperature tool is going down next run - reported temp above is from yesterday's run; will update Temperature on recovery of next core run.

Hawaii Play Fairway	Report for:	7:00 am	6/10/2019	to 7:00 am	6/11/2019	Well No.:	Lanai #10
GENERAL						Report No.:	28
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	18	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2217	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:		
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	133.3°F/56.3°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

We are beginning to see zones of pervasive alteration where the primary minerals are mostly replaced by clays and zeolites(?). These zones are less stable and are prone to caving: about three hours of the day were spent pulling rods and re-drilling to clean up the hole and clear it of cave material falling in behind the rods to prevent sticking the rods. We are still getting fluid returns to the surface (very uncommon here) and so much lower gel and polymer use than anticipated

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	2117	2167	50	2" cave; formation sticky
19:00	7:00	coring	2167	2217	50	sections broken and sticky

PLANNED OPERATIONS

Because we continue to get mud returns, we are going to rent a backhoe/loader to construct a small mud sump so that we can more effectively separate the cuttings from the return mud

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2117	2217	basalt: mostly breccia; some solid competent intervals	fairly pervasive moderate mineralization
		some sections heavily altered to zeolites (?) and clays soft	some zones showing extensive
		some sections broken and unstable - caving/sticking the rods	breakdown of primary minerals

SUPPORT ACTIVITIES/RELEVANT EVENTS

Temperature survey for 6/11 drill day is a bit lower: 129.5 F/54.2 C

Hawaii Play Fairway	Report for:	7:00 am	6/11/2019	to 7:00 am	6/12/2019	Well No.:	Lanai #10
GENERAL						Report No.:	29
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	19	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2257	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	40	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	129.5°F/54.2°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

coring ahead with no major issues. Several short runs beginning in the later part of the day shift continuing into the night.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	2217	2250	33	quite broken and unstable in sections
19:00	7:00	coring	2250	2257	7	stuck tube; trip pipe; chng bit; clean hole

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2217	2257	basalt: mostly breccia; some solid competent intervals	fairly pervasive moderate mineralization
		some sections heavily altered to zeolites (?) and clays soft	some zones showing extensive
		some sections broken and unstable - caving/sticking the rods	breakdown of primary minerals

SUPPORT ACTIVITIES/RELEVANT EVENTS

about three hours of the day shift pulling rods and re-drilling to clean up the hole and clear it of cave material falling in behind the rods. Night shift had stuck tube; tripped out the pipe to recover tube; changed bit; washed back into the hole and worked the hole to clear it of debris from unstable formations. We still are getting most of the mud back - need to construct a sump to properly clean the mud of cuttings prior to recycling down the hole. Temperature tool down; will report on later today.

Hawaii Play Fairway	Report for:	7:00 am	6/12/2019	to 7:00 am	6/13/2019	Well No.:	Lanai #10
GENERAL					Report No.:	30	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	20	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2327.6	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	70.6	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	119.2°F/48.4°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

coring during the day recovered fair rock with intervals of fractured, broken, altered rock. Changing fluids out more frequently, using more gel to try to control infall into the hole; spend a lot of time pulling back and swabbing the hole to stabilize the walls and control torque. Having some problems with leaking seals on mud mixer system - ordered new seals two+ weeks ago: FedEx can't find Lanai City...

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	2257	2301.5	44.5	broken rock; caved in pulled & reamed
19:00	7:00	coring	2301.5	2327.6	26.1	"sandy"; tight; swab hole

PLANNED OPERATIONS

build a sump to better process the mud and separate solids from mud before recycling. Limited by availability of equipment
no rental backhoe available; Pulama Lanai will provide us with one when equipment and operator are available

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2257	2327.6	mostly broken/compacted/cemented rock with zones of	fairly pervasive moderate mineralization
		very heavily altered and replaced rock; a few thin lenses of	some zones showing extensive break-
		fine-grained clay - possibly an altered soil or ash layer	down/replacement of primary minerals

SUPPORT ACTIVITIES/RELEVANT EVENTS

previous night was spent swabbing the hole and replacing all the circulating mud to reduce solids suspended in the mud - temperature for 6/12 shows the effect - an apparent 10 degree drop in bottom hole temperature. We may see a similar effect for the 6/13 measurement with the swabbing being done over night.

Hawaii Play Fairway	Report for:	7:00 am	6/13/2019	to 7:00 am	6/14/2019	Well No.:	Lanai #10
GENERAL					Report No.:	31	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	21	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2327.6	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	129.4°F/54.1°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

serious hole stability problem - believed to be running sand. Tripped out several stands, tried to go in to clean the hole, no success. Attempt to wash in and get to bottom with core bit but, as we approach bottom, hole gets tight and have to pull back. Finally decided to pull string, go in with rotary bit and try to clean and, if successful, go to coring; if not, back out while back filling the lower hole with cement. No new footage recovered.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	washing and drilling	2327.6	2327.6	0	broken rock; caved in pulled & reamed
19:00	7:00	washing and drilling	2327.6	2327.6	0	"sandy"; tight; swab hole

PLANNED OPERATIONS

build a sump to better process the mud and separate solids from mud before recycling. Limited by availability of equipment
no rental backhoe available; Pulama Lanai will provide us with one when equipment and operator are available

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2327.6	2327.6	sand and broken fragments	

SUPPORT ACTIVITIES/RELEVANT EVENTS

temperature measured on the first "core" run of the day - no core recovered still drilling in sand somewhat above bottom hole when the tool was pulled. But temperature recovered significantly from yesterday's low.

Hawaii Play Fairway	Report for:	7:00 am	6/14/2019	to 7:00 am	6/15/2019	Well No.:	Lanai #10
GENERAL						Report No.:	32
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	22	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2327.6	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	129.4°F/54.1°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground		
	ron.m.fierbach@gmail.com				level.		

OPERATIONS

Night shift from yesterday still struggling to get to bottom - pull back the bit and any footage gained is immediately filled with sand. Day shift mixed and placed ~200 gallons of cement through the tricone bit. Cement was displaced with water to just above the bit and then pulled back to allow cement to be placed in bottom of the hole. Placement went well - rods came out fairly freely, and no evidence of cement left in the rods. Clean cementing equipment and clean site. WOC until 22:00; rotary to btm.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	cementing and WOC	2327.6	2327.6	0	pumped 250 gal cement; displaced to bit
19:00	22:00	WOC	2327.6	2327.6	0	pulled bit above cement & WOC
22:00	5:00	washing and drilling	2327.6	2327.6	0	
5:00	7:00	tripping out of hole	2327.6	2327.6	0	still some hanging in the bad zone

PLANNED OPERATIONS

build a sump to better process the mud and separate solids from mud before recycling. Limited by availability of equipment
no rental backhoe available; Pulama Lanai will provide us with one when equipment and operator are available

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2327.6	2327.6	sand	

SUPPORT ACTIVITIES/RELEVANT EVENTS

No temperature measurement for the day - working on hole.

Night crew drilled through stringers of cement starting at ~300' above btm. Drilled through and tagged several obstructions but producing sand all the way to bottom. Pulled up to test stability, lost footage (sand fill). Tripped out by 07:00; bit showed some hanging coming out - suggesting that the bad zone is still putting material into the hole.

Some debate among drillers and supervisors as to whether this is a "flowing sand" or we have a highly altered unstable formation that is dumping material in behind the drill string that is being milled up by the drill pipe and dropping down the hole. We have not recovered any sand zones above - but have recovered several sections of highly fractured rock that was also quite friable. We have examined samples of sand that were brought to the surface by the mud and the sand shows a broad range of sizes - prior coring through beach deposits showed a more uniform size to the sand.

Hawaii Play Fairway	Report for:	7:00 am	6/15/2019	to 7:00 am	6/16/2019	Well No.:	Lanai #10
GENERAL					Report No.:	33	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	23	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2347	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	10	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	129.4°F/54.1°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground		
	ron.m.fierbach@gmail.com				level.		

OPERATIONS

Report from the night shift indicated that the cementing may not have taken. Indicated that there was sand drilling down, along with isolated cement stringers starting at 300' above bottom. Day shift discussed next steps and arrived at three options: do several more spot cementing; bring in more PQ and ream HQ open and insert PQ liner across bad zone; abandon this hole and move to Lanai 9. Had difficulty finding needed cement on Saturday (everything shut down) but Nicole made some calls to PL and

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	10:00	reviewing options	2327.6	2327.6	0	Night shift reports indicated cement job
10:00	14:00	chase cement supply	2327.6	2327.6	0	did not take
15:00	19:00	Prep. to Cem; trip TC in	2327.6	2327.6	0	no obstr.; min. drag; min sand @ btm.
19:00	0:00	Tri-cone; swab hole; trip	2327.6	2347	0	
0:00	7:00	Trip TC out; Trip CB in	2327.6	2347	0	

PLANNED OPERATIONS

build a sump to better process the mud and separate solids from mud before recycling.

Pulama Lanai will provide us with one when equipment and operator are available

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to
						HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2327.6	2347	solid rock	unknown

SUPPORT ACTIVITIES/RELEVANT EVENTS

3 super sacks (2500 lbs each) cement were delivered by afternoon. Tripped rotary bit in in preparation for setting another 300' of cement - expected to find bottom of hole sanded in over the bottom 30+ feet as it had been doing previously - encountered only about 3 ft of sand indicating that the cement may have stabilized the zone generating the sand. Discussed with drillers and elected to have night shift rotary drill ahead for one or two 10' sticks to determine whether we were still in the sand zone or if the hole would remain stable. Night crew drilled ahead and pulled back and re-swabbed the hole while checking returns for sand. Satisfied themselves that the sand was cured and tripped out the rotary bit and tripped back in with the core barrel. Day shift (16th) recovered a few inches of sand with good solid core below. No temperature taken during today's activities - feared that the hole was too unstable to run a sinker bar and temperature logger in the open hole. The temperature tool is in the hole at the present hour - will report when that is available.

Hawaii Play Fairway	Report for:	7:00 am	6/16/2019	to 7:00 am	6/17/2019	Well No.:	Lanai #10
GENERAL						Report No.:	34
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	24	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	0	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	115.7	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	135.5/57.5	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground		
	ron.m.fierbach@gmail.com				level.		

OPERATIONS

The day's drilling went extremely well - minimal sand was encountered during the first coring run, with none after that. Torque was down. Minor rig repairs were made during the day shift that reduced the penetration for that shift but the night shift was as good as we had seen before the sand troubles. Temperature measured at the beginning of the day saw a recovery to above previous highs, further suggesting that circulation was affecting the readings.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	10:00	washing, coring	2354	2406.5	45.2	2' sand rec. first run; more lost
10:00	14:00	coring	2406.5	2477	70.5	no sand, torque low
15:00	19:00				0	
19:00	0:00				0	
0:00	7:00				0	

PLANNED OPERATIONS

build a sump to better process the mud and separate solids from mud before recycling.

Pulama Lanai will provide us with one when equipment and operator are available

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to
						HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2354	2406.5	mostly solid rock; some fractured zones; lithified soil contacts	vessicle and fracture filling is pervasive
2406.5	2477	solid rock; fewer fractures; variable vesicularity	vessicle and fracture fill is pervasive a few
			open voids

SUPPORT ACTIVITIES/RELEVANT EVENTS

The sand problem seems to have been rectified. Torque has been good, no more evidence of rod sticking. Took some time in the morning to repair the rod curtain (system for shielding the driller and hands from rotating rod on the rig floor. But rest of the day went smoothly - pretty good ROP for the day shift and very good ROP for the night shift. Yesterday's temperatures were back to a level higher than before we encountered the sand problems. Tool is now down; temperature will be reported later today. One addendum to yesterday's report: during some accelerated circulation to clear the hole on the night shift of the 15th, we observed discharge of clear (fresh) water for a short period of time (several minutes). The only clear water we have circulated into the hole was displacement water during the cementing operation - that should have long since been circulated out. The alternative is that we have drilled through a zone that is producing water at a head sufficient to counteract the 1200' of head present in our casing and liner (the local water table is ~1200' bgs although it is highly variable in the basin here).

Hawaii Play Fairway	Report for:	7:00 am	6/17/2019	to 7:00 am	6/18/2019	Well No.:	Lanai #10
GENERAL						Report No.:	35
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	25	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2567	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	90	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	140.5/60.3	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground		
	ron.m.fierbach@gmail.com				level.		

OPERATIONS

Today's drilling went fairly well - we had a few non-drilling episodes to repair the drillers console: corrosion is a perpetual problem in Hawaii and switch contacts had gone bad; we also lost drilling time to the construction of the sump to allow us to separate solids from the mud. It appears to be working well. Night shift cored through the night will some time spent swabbing the hole to reduce torque and expel solids.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	11:30	coring	2477	2494	17	Coring well
11:30	14:00	repairs to console	2494	2494	0	switches on control console repaired
14:30	16:00	coring	2494	2514	20	coring well
16:00	18:30	digging sump	2514	2514	0	sump constructed adjacent to rig for mud
18:30	7:00	coring	2514	2567	53	mostly good; some friable zones spalling

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to
						HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2477	2514	dominant solid, dense rock - a few fractures	vessicle and fracture filling is pervasive
2514	2567	mostly solid; some dike rock; a few zones of punky, intensively altered friable rock	ditto above; some zones are completely broken down with weak secondary mass

SUPPORT ACTIVITIES/RELEVANT EVENTS

Coring is going much better in part due to a change in the rock type as well as awareness by the drillers that, when the torque increases, they need to adjust their pumping rate and the drilling fluid mix to clear the hole of debris. It is likely that the zones where we see pervasive breakdown and replacement of the rock are the ones generating the "sand": material is spalling off the walls and being milled up in the annulus and the heavier fractions are not being effectively flushed from the hole. The drilling fluid is being affected by either the pH of the mix water, the downhole temperature, or both. We are using polymer mostly - the mud was separating almost immediately when mixed. The polymer goes into the hole highly viscous, but comes out much "thinner" - we have soda ash coming in tomorrow (none on the island) and will add that to the drilling fluid to see if we can improve the performance of the polymer and bentonite gel. We have more gel being shipped from the Mainland but will not have that here until next week or later. Temperature at beginning of the day was significant increase from prior day.

Hawaii Play Fairway	Report for:	7:00 am	6/18/2019	to 7:00 am	6/19/2019	Well No.:	Lanai #10
GENERAL					Report No.:	36	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	26	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2677	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	110	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	140.1/60.1	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Coring ahead with only minor issues with torque. Late during the day shift penetration and water pressure increased; inspection of the core shows a different softer rock type that appears to cut poorly and generate a mud layer at the bit face, reducing the cutting ability of the stones. Drilled out of that zone into good rock at end of day shift and night shift went well. Day-to-day equipment issues require continuous import of parts and supplies to keep everything functioning.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	2567	2616.8	49.8	Coring well; slow zone late in day
19:00	7:00	coring	2616.8	2677	60.2	coring went smoothly

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2567	0	some solid rock; some softer material that drills poorly	as yesterday; ~10' zone of possible seds.
2514	2567	all solid sticks of rock; some color variations suggesting rock has been deformed/fragmented and recemented together	compacted rock cemented with secondary mineral deposition(?)

SUPPORT ACTIVITIES/RELEVANT EVENTS

Progressing relatively well. The sump is functioning as intended; still seeing breakdown of polymer during the round trip down the drill string. We are awaiting delivery of soda ash (today or tomorrow) to see if amending the pH of the fluids will help us maintain the consistency of the drilling fluid. We are now drilling with polymer only - no bentonite since it seems to break down almost instantly after mixing - will test whether pH adjustment will help control that.

Hawaii Play Fairway	Report for:	7:00 am	6/19/2019	to 7:00 am	6/20/2019	Well No.:	Lanai #10
GENERAL					Report No.:	37	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	27	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2767	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	90	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	140.1°F/60.1°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Coring ahead with only minor issues with torque. Some zones were altered and we are seeing an increase in a greenish secondary mineral encountered at similar temperatures in PTA borehole: it is a zeolite that has a very soapy/waxy texture that reduces penetration due to build-up of scum at the bit face. It this further reduces penetration, we have a special bit fabricated with larger stones that can restore ROP.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	2677	2727	50	Coring well; some broken and altered
19:00	7:00	coring	2727	2767	40	more broken and altered than day

PLANNED OPERATIONS

Modify water supply connections at reservoir - pump is failing and is likely due to vibration stresses on pump.

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2677	0	some solid rock; some softer material that drills poorly	some pervasively altered zones; new
2514	2567	increasing fraction of softer altered intervals	mineral suite appearing that affects the rate of penetration

SUPPORT ACTIVITIES/RELEVANT EVENTS

Rate of penetration is slowing somewhat with a change in secondary mineralization. We are seeing same parent rock, but the minerals infilling the vesicles and fractures is changing to a zeolite that we saw at PTA. It is quite soft - can be dug out with fingernails - but has a soapy or talc feel to it. It requires higher weight on bit, resulting in higher torque, in order for the stones in the bit to contact and cut the underlying rock.

Hawaii Play Fairway	Report for:	7:00 am	6/20/2019	to 7:00 am	6/21/2019	Well No.:	Lanai #10
GENERAL					Report No.:	38	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	28	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2852	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	85	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	142.5/61.4	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Day shift: coring ahead with only minor issues with torque. Serviced rig - oil and filter change, pulled bad section of wireline; flush oil in head with new oil. Variable alteration of rocks; still see variable green infill but not bad progress. Night shift: encountered intensively altered zone; hole got tight spent time swabbing and washing; replaced some fittings on water lines; repaired bean pump. Some good core but very bad zone in the last run of the night shift - broken, sandy, soft - hole got tight and

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring	2767	2816.9	49.9	Coring well; some broken and altered
19:00	7:00	coring	2816.9	2852	35.1	much more broken and altered than day

PLANNED OPERATIONS

Modify water supply connections at reservoir - pump is failing and is likely due to vibration stresses on pump.

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2767	2816.9	some solid rock; some softer material that drills poorly	a few small strongly altered zones in day
2514	2567	increasing fraction of softer altered intervals	shift; much more intensively altered in the
			night shift - slower penetration

SUPPORT ACTIVITIES/RELEVANT EVENTS

Temperature only slightly warmer than prior day. May well be due to increasing circulation we are doing to clear cuttings from the hole and more time the fluid spends on the surface (in our sump) to lose heat it picked up downhole. Previously we had a pretty short cycle time for the fluids in small tubs.

Hawaii Play Fairway	Report for:	7:00 am	6/21/2019	to 7:00 am	6/22/2019	Well No.:	Lanai #10
GENERAL						Report No.:	39
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	29	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2852	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	no temperature taken	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Day shift spent the day attempting to clear the hole of in-fill - was not able to get to bottom; tripped out core barrel and ran in with tricone bit. Night crew spent the night trying to drill to bottom with no success - tricone bit got plugged with debris and had to be pulled. POOH by 07:15.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	14:00	cleaning swabbing	2852	2822	0	can't get to bottom
14:00	19:00	tripping out and in	2822	2822	0	swapping core bit for tricone
19:00	3:00	drilling and swabbing	2822	2822	0	cannot clear cuttings from the hole
3:00	7:00	POOH	2822	2822	0	several feet of fill behind bit all fragments

PLANNED OPERATIONS

Modify water supply connections at reservoir - pump is failing and is likely due to vibration stresses on pump.

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to
						HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2852		material in drill pipe behind tricone was fragmental heavily	
		altered formation - similar to the pervasively altered intervals	
		of core from 6/20 night shift	

SUPPORT ACTIVITIES/RELEVANT EVENTS

We believe that the downhole situation is as follows: the broken and friable zone through the last several runs of 6/20 night shift are progressively caving in around the drill string and backfilling the hole with rubble. The friable formations in the recovered core are extremely weak and can be fragmented by hand. Our attempts at clearing the hole have formed a cavity in those zones that reduces our drilling fluid velocity up the annulus and, hence, we cannot clear the cuttings from the hole nor drill up the cave material. Our best alternative option is to perform another cement job to back fill those cavities and stabilize the infill material so that we can drill it up and remove it from the hole. We will drill as deeply into the rubble as we safely can and back out laying a cement slurry into the rubble and backfilling the cavity. After setting, we will drill through the cement patch and see if we can get to bottom and maintain a stable hole; if not, we expect to do another cement patch below the first.

Hawaii Play Fairway	Report for:	7:00 am	6/24/2019	to 7:00 am	6/25/2019	Well No.:	Lanai #10
GENERAL						Report No.:	42
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	32	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2852	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	no temperature taken	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Drilled to bottom during day shift; mixed and placed 300 gal. neat cement at bottom through tricone bit; night shift clean up site and WOC.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	16:00	drilling into hole	2852	2852	0	reached bottom; cleared cuttings
16:00	19:00	mix and place cement	2852	2852	0	300 gals cement mixed and displaced
19:00	7:00	clean up site; WOC	2852	2852	0	

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2852		cuttings purged from hole included bentonite and cuttings	

SUPPORT ACTIVITIES/RELEVANT EVENTS

Flushed large volume of cuttings and bentonite from hole as bottom was approached; occasionally experienced high torque and high backpressures during the drilling operation. Cementing operation went well - mixed ~300 gallons pumped down with Bean Pump and was displaced with an appropriate volume of water to get down to the bit. Pulled the drill string and bit above the cemented zone with no problem; waiting on cement for entire night shift - samples were taken of the cement mix before it went down - still soft in morning.

Hawaii Play Fairway	Report for:	7:00 am	6/25/2019	to 7:00 am	6/26/2019	Well No.:	Lanai #10
GENERAL						Report No.:	43
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	33	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2852	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	no temperature taken	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Day shift: cement sample still soft at start of shift; worked on mud line to reconfigure to make it more robust and less difficult to drill with. Began drilling on cement plug at 12:00; still fairly green. Night shift drilled to bottom and 3' into solid formation. Tripped out smoothly; bit was worn but still whole; tripped in coring assembly until morning. Heavy rains at the site overnight.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	12:00	WOC; rig modifications	2852	2852	0	improve mud line from pump to swivel
12:00	19:00	drilling cement	2852	2852	0	going smoothly
19:00	1:00	drilling cement	2852	2855		drilled to bottom & into solid rock below
1:00	7:00	tripping pipe	2855	2855	0	tricone out; core assembly in

PLANNED OPERATIONS

clean drilling debris out of sump.

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2852		debris purged from hole included bentonite and cuttings	

SUPPORT ACTIVITIES/RELEVANT EVENTS

end of the day shift started pumping debris from the sump with trash pump. Lowered the level by several feet so that we can continue to circulate clean drilling fluids. Baroid gel is in transit as of today; expected in HNL by Saturday.

Hawaii Play Fairway	Report for:	7:00 am	6/26/2019	to 7:00 am	6/27/2019	Well No.:	Lanai #10
GENERAL						Report No.:	44
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	34	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	2852	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	51.5	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	135° F/57° C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Day shift: intense rainfall during the night - site is muddy and not safe; spent 2 hours cleaning up and bringing dry soil to fill in muddy areas; clean off stairs; clean up mud mixer and surroundings. Continued washing in the core assembly; reamed botom 20'; started coring - advanced 18'. Night shift continued coring although are encountering more cave - the prior cores were broken up but not as altered as the prior bad zones: looks to be shatter zones flanking intrusions.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	9:00	clean up site serv. rig	2855	2855	0	rain previous night drowned site
9:00	13:00	trip/wash to bottom	2855	2855	0	had to ream last 20' to bottom
13:00	19:00	coring/wash hole	2855	2873	17.5	bottom of hole still sticky; wash out fill
1:00	7:00	drilling and washing	2873	2907	34	tricone out; core assembly in

PLANNED OPERATIONS

clean drilling debris out of sump.

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2855	2907	variable lithology; broken/reconsolidated rock; appears to have	most vesicles and fractures are entirely
		some dike material; some intensively fractured	filled with secondary mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Some of the core recovered during the shifts was fairly competent but other intervals are highly fractured and are much less competent than others. The fractured zones appear to be associated with intrusions. The broken up rocks are resulting in blocked core tubes and short runs - we had two during the coring of yesterday and last night. Temperature run during the night yielded a temperature of 135 F.

Hawaii Play Fairway	Report for:	7:00 am	6/27/2019	to 7:00 am	6/28/2019	Well No.:	Lanai #10
GENERAL					Report No.:	45	
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	35	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	3007	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	100	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	139° F/59° C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Coring progressed well though the day and night shifts. The drilling fluid now consists of polymer entirely and is being mixed to a somewhat higher viscosity. The core was much more consolidated through the drilling day - only a few thin intervals of highly fractured material that did not appear to be intensively altered. The drillers are washing down after each core run are being more careful to avoid build up of cuttings and sand in the hole.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring/wash hole	2907	2947	40	coring well; little sand production
19:00	7:00	coring/wash hole	2947	3007	60	coring well; RQD is much better

PLANNED OPERATIONS

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CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
2907	2907	variable lithology; broken/reconsolidated rock; appears to have	most vesicles and fractures are entirely
		some dike material; some intensively fractured	filled with secondary mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Drilling during the day shift was good - there were still some slow zones and a small amount of caving; as the day progressed, the quality of the rock improved - pulled one 7' continuous stick out of the core barrel at the end of the day shift. The night shift pulled two 7+ ft. sticks.

Temperature at the end of the day was 139 °F.

Hawaii Play Fairway	Report for:	7:00 am	6/28/2019	to 7:00 am	6/29/2019	Well No.:	Lanai #10
GENERAL						Report No.:	46
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	36	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	3007	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	100	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	139° F/59° C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Coring progressed well though the day and night shifts. The core is holding together nicely - some 6' and 7' sticks coming out of the core tube. No real issues today at all.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring/wash hole	3007	3046.8	39.8	well into final run at crew change
19:00	6:30	coring/wash hole	3046.8	3107	60.2	no significant problems core and wash
6:30	7:00	clean up site				prep for open house for Lanai public

PLANNED OPERATIONS

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CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
3007	3107	variable lithology; broken/reconsolidated rock; appears to have	most vesicles and fractures are entirely
		some dike material; some intensively fractured	filled with secondary mineralization

SUPPORT ACTIVITIES/RELEVANT EVENTS

Planned for Saturday 6/29 is an open house - the night crew cleaned up the site, and ran caution tape around the rig and working site in preparation for that event. Temperature in the morning was 139 °F.

Hawaii Play Fairway	Report for:	7:00 am	6/29/2019	to 7:00 am	6/30/2019	Well No.:	Lanai #10
GENERAL						Report No.:	47
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	37	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	3007	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	106	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	139° F/59° C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Coring progressed reasonably well though the day. We encountered one minor problem - the first pull of the day shift lost much of the core from the tube. Once the tube was pulled, we found that a small ding in bottom of the core lifter case had prevented the core spring from fully engaging with the core in the tube (details count...). The driller was able to recover the lost core, but lost time in the process. Night shift went very well 60' of core recovered.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring/wash hole	3107	3157	46	frist run slipped core; retrieved most
19:00	6:30	coring/wash hole	3157	3217	60	coring well; rock is very solid
6:30	7:00	clean up site				

PLANNED OPERATIONS

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CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
3107	3217	mostly consolidated breccia with intermittent dikes	vesicles and fractures are dominantly
		some dikes seem to be fractured but not recemented	filled with secondary mineralization
			no intervals of intensive alteration

SUPPORT ACTIVITIES/RELEVANT EVENTS

Open house was very successful - substantial number of people came by to visit the site. We had tents and tables set up with displays of core, various drill bits, samples of drilling fluids showing the returned cuttings. Although the rig was roped off, the public area was close enough for people to see what was going on on the rig floor and we were able to explain the process to the visitors. Nicole, Eric Haskins (our core manager) and Don were at the displays to describe the drilling and the research that was being done.

We had the temperature tool in the core tube when we lost the core and it took a beating as the driller tried to wash back over the lost core. The tool did survive and yielded a temperature of, again, 139 F, but probably won't survive another trip into the hole (the top was badly deformed and probably won't seal if used again). I have a back up that will be used through the rest of the drilling exercise.

Hawaii Play Fairway	Report for:	7:00 am	6/30/2019	to 7:00 am	7/1/2019	Well No.:	Lanai #10
GENERAL						Report No.:	48
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	38	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	3337	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	120	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	145° F/62.8° C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Coring progressed well through the day. No significant issues were encountered. Very few and very thin intervals of hydrothermal breakdown of the rock - seemingly associated with intrusive contacts. Night shift went quite well as well.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring/wash hole	3217	3276.9	59.9	well into final run at crew change
19:00	7:00	coring/wash hole	3276.9	3337	60.1	no significant problems; core and wash

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
3217	3337	variable lithology; broken/reconsolidated rock; appears to have	still seeing substantial mineralization of
		some dike material; some intensively fractured	vessicles and fractures but also seeing a few
			open vessicles - reduced mineralization?

SUPPORT ACTIVITIES/RELEVANT EVENTS

The hole is progressing well. We have arranged a pumping system to remove solids from the bottom of the first sump so that we can continue to use it as a settling basin and recycle drilling fluid from the second sump. The cuttings being generated are distinctly different from those that were produced while we were having trouble with the hole: the latter were dominated by fragments having the texture of fine sand whereas we are currently producing much finer, more clay like, solids from the hole. This material is much easier to flush from the hole using polymer alone.
We deployed the back-up temperature tool into the hole during the morning (6/30) and it recovered a maximum temperature of 145 F.

Hawaii Play Fairway	Report for:	7:00 am	7/1/2019	to 7:00 am	7/2/2019	Well No.:	Lanai #10
GENERAL						Report No.:	49
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	39	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	3417	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	80	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	146.7 F/63.7 C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Coring progressed well through the day. One issue was encountered: we are now using a pure polymer compound that requires special mixing in order to hydrate properly - a change in mixing procedure allowed it to be used. Overall had good recovery through the day. Night shift encountered serious downhole problems with excess water pressure - apparently, driller did not follow instructions for polymer mixing and over-dosed the mix which caused high circulation pressures.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	19:00	coring/wash hole	3337	3397	60	well into final run at crew change
19:00	7:00	coring/wash hole	3397	3417	20	downhole problems with excess pump pressure

PLANNED OPERATIONS

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CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
3337	3417	variable lithology; broken/reconsolidated rock; appears to have some dike material; some intensively fractured	still seeing substantial mineralization of vespicles and fractures but also seeing a few open vespicles - reduced mineralization?

SUPPORT ACTIVITIES/RELEVANT EVENTS

Downhole problems during the night shift were largely self-inflicted. That shift used more than a 55 gal drum of nearly pure polymer compound - ten times what a normal shift would use. At shift change, the drillers got into a dispute over whose fault the problem was with the outcome that the night shift driller was terminated and sent home by the company. After consultation with our drilling supervisor and the company operations manager, the decision was made to go to a single daytime shift and suspend further night time operations through the planned end of the current drilling interval, July 8. As we have two local hires who are fully qualified drill hands working on the project, we have released the other two company hands from further work on this phase of drilling. We will assess the risks associated with daytime only drilling over the next several days to determine whether we are at risk of sticking the rods or of having debris accumulation in the hole that will cause other problems. If it is determined that those risks are unacceptably high, we will terminate activities before July 8.

Hawaii Play Fairway	Report for:	7:00 am	7/2/2019	to 7:00 am	7/3/2019	Well No.:	Lanai #10
GENERAL						Report No.:	50
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	40	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	3466.6	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	49.6	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	151°F/66°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

As noted in previous report, a dispute between the day and night drillers resulted in termination of the night driller and an immediate transition to day shift only operations. Day shift operations will be evaluated on an ongoing basis to ensure that operations are safe and of minimal risk to the hole. After a thorough wash of the hole, coring operations proceeded smoothly for the remaining duration of the day shift. At end of shift, site was secured and crew returned to quarters.

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	9:00	standby	3417	3417		resolve situation with company
7:00	17:45	coring/wash hole	3417	3466.6	49.6	wash hole 1 hour at end of shift
17:45	19:00	trip 220' rod out	3466.6	3466.6		ensure hole is clear for tomorrow's shift
19:00	7:00	night shift terminated				

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
3417	3466.6	variable lithology; broken/reconsolidated rock; appears to have	still seeing substantial mineralization of
		some dike material; some intensively fractured	vessicles and fractures but also seeing a few
			open vessicles - reduced mineralization?

SUPPORT ACTIVITIES/RELEVANT EVENTS

When the hole was flushed, and through out the day, poorly-hydrated fragments of polymer were flushed from the hole but gradually cleaned up by the end of the day. During the day shift, the temperature tool yielded a temperature of 151 F. At the end of the shift, we ran the tool down to the bottom of the drill string at ~220' off bottom and left it in place over night. Temperature showed a slow increase over night with a maximum temperature of 146 F - which is consistent with the temperature taken while drilling at this depth.

Hawaii Play Fairway	Report for:	7:00 am	7/3/2019	to 7:00 am	7/4/2019	Well No.:	Lanai #10
GENERAL						Report No.:	51
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	41	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	0	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	151°F/66°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Day shift began with lowering drill string from 220' off bottom to 30' off bottom - encountered no obstructions; driller hooked up swivel to wash to bottom and hole pressured up. Rod would rotate, but limited movement up or down - when pressured no movement at all. With low water pressure, driller was able to back ream out of that depth and began pulling rods. Made it to 330' off bottom and rods locked up. Worked rods for rest of the day with no significant movement up/down/rotating.....

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	18:00	work drill rod	3466.6	3466.6		attempting to pull drill rod from hole
18:00	19:00	secure site				pulled up 330' off bottom; rod became
						completely stuck - no up, no down
						unable to circulate fluids into hole; pulled
						tube and came up easily

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to
						HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
3466.6	0	variable lithology; broken/reconsolidated rock; appears to have	still seeing substantial mineralization of
		some dike material; some intensively fractured	vessicles and fractures but also seeing a few
			open vessicles - reduced mineralization?

SUPPORT ACTIVITIES/RELEVANT EVENTS

hole is unable to take water - as soon as we add water to the rods, we get substantial back pressure. Rods left hanging in hole overnight. _____
temperature measurement made overnight at 220' off bottom in the hole came back 145 F with slight but progressive increase over night.

Hawaii Play Fairway	Report for:	7:00 am	7/4/2019	to 7:00 am	7/5/2019	Well No.:	Lanai #10
GENERAL						Report No.:	52
Operator:	IDEA Drilling, Inc. Contact: Julian Collins 888-634-IDEA				Well Type:	extending cable tool hole	
	5895 East 2nd St., Winnemucca, NV 89445				Spud Date:	1989	
Well	Lanai Well 10				Days on Location:	42	
Location:	UTM 4 Q 716195.61 m E, 2297652.42 m N				Current Depth (ft):	0	
	Lat/Long: 20°45'58.00"N 156°55'24.00"W				Planned TD (ft):	NA	
	Elevation (ft): 1,100				Hole Made Last 24hrs:	0	
					Current Hole Size (in):	3.825"	
Rig:	UH Manoa Contact: Don Thomas 808-895-6547				Max DH Temp (drilling)	151°F/66°C	
	POST 602, 1680 East-West Rd, Honolulu HI 96822						
Supervisor:	Ron Fierbach				Note: All depths ground level.		
	ron.m.fierbach@gmail.com						

OPERATIONS

Day shift resumed working the drill rod in an effort to recover drill string. Water levels in the drill string and the annulus were equalized to alleviate any possibility of hydrostatic "sticking" with no discernable effect on the drill rod. The driller and drilling supervisor concluded that mud or cuttings have trapped the bottom hole assembly and that the best approach to recovering the drill string will be to cut the string immediately above the core barrel and go back into the hole and drill out the BHA

DRILLING ACTIVITIES

From (hrs)	To (hrs)	Operation	Start MD	End MD	Ft Recovered	Comments
7:00	12:00	work drill rod	3466.6	3466.6		In the absence of any progress at moving
12:00	19:00	clean up site secure				the drill string, we have concluded that
		equipment for standby				we will have to cut the BHA loose and re-
						enter the hole with a milling bit to drill
						out the BHA.

PLANNED OPERATIONS

CASING

From (ft)	To (ft)	Diameter	Wgt. Ppf	Grade	Thread Type	Comments
surface	11'	24"	unk	unk	welded	existing conductor pipe at top of hole: extends to ~11'
Surface	1448'	5.5"	14			temporary PWT casing/liner for drilling through
Surface	1465	4.5"	10.6			temporary PQ liner to provide further stability to
						HQ string

LITHOLOGY

From (ft)	To (ft)	Description	Mineralization
3466.6	0	variable lithology; broken/reconsolidated rock; appears to have	still seeing substantial mineralization of
		some dike material; some intensively fractured	vessicles and fractures but also seeing a few
			open vessicles - reduced mineralization?

SUPPORT ACTIVITIES/RELEVANT EVENTS

Further activity at the site will be suspended until we are able to procure and ship NQ drill rod and a cutter tool to cut the BHA loose. Drillers and crew have been released effective today and are returning home.