GTHT -___004___

THERMAL GRADIENT WELLS

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Revised August 1, 2011

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR SERVICE COMPANIES,GAS PLANTS, REFINERIES, COMPRESSOR, GEOTHERMAL FACILITES AND CRUDE OIL PUMP STATIONS

(Refer to the OCD Guidelines for assistance in completing the application)

☒ New ☐ Renewal ☐ Modification

1. Type: Geothermal - temperature gradient hole
2. Operator: Ormat Nevada Inc

   Address: 6225 Neil Road, Reno, NV 89511

   Contact Person: Charlene Wardlow Phone: 775-336-0155
3. Location: NE /4 NW /4 Section 4 Township 19S Range 24W

   Submit large scale topographic map showing exact location.
4. Attach the name, telephone number and address of the landowner of the facility site.
5. Attach the description of the facility with a diagram indicating location of fences, pits, dikes and tanks on the facility.
6. Attach a description of all materials stored or used at the facility.
7. Attach a description of present sources of effluent and waste solids. Average quality and daily volume of waste water must be included.
8. Attach a description of current liquid and solid waste collection/treatment/disposal procedures.
9. Attach a description of proposed modifications to existing collection/treatment/disposal systems.
10. Attach a routine inspection and maintenance plan to ensure permit compliance.
11. Attach a contingency plan for reporting and clean-up of spills or releases.
12. Attach geological/hydrological information for the facility. Depth to and quality of ground water must be included.
13. Attach a facility closure plan, and other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.
14. CERTIFICATIONI hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Charlene L. Wardlow Title: Director Business Development

Signature: Charlene L Wardlow Date: April 18, 2014

E-mail Address: CWardlow@ormat.com

Ormat Nevada Inc.
Discharge Plan Application for Geothermal Temperature Gradient Hole 32-4 at Rincon, NM

Injection is proposed using groundwater from a local supply well. At the completion of the temperature gradient hole (TGH) 32-4, Ormat Nevada Inc. (Ormat) would like to inject clean water into the hole to do an injection test. The water would be either from the water company in Rincon or purchased from a local entity with a groundwater well. Injection into a geothermal hole is useful to determine injectivity and permeability characteristics of the geothermal resource. This application explains the operations to accomplish this purpose.

4. The landowner is the United States Department of the Interior Bureau of Land Management, Las Cruces District Office, 1800 Marquess Street, Las Cruces, NM 88005. Edward Suem, Supervisor Lands & Minerals, 575-525-4313, eseum@blm.gov. The TGH would be located on BLM lease NMNM 125605.

5. The facility will be a well pad to accommodate the drilling rig and equipment to drill the TGH. See enclosed well pad layout. Because there is an existing well pad at this location it will not be exactly square like shown. The pit will be permitted as a temporary pit and cleaned out the end of the drilling operation.

6. Diesel fuel for the engines, gel based mud and barite for well control will be on location along with other small amounts of materials. See enclosed list from Newpark Drilling Fluids, LLC.

7. There is currently no sources of effluent or waste solids on the site. Drilling of the TGH will require drilling mud and drilling of the hole will generate cuttings which will be placed in the pit (called a containment basin on the drillpad layout) as the the hole is drilled. The amount will depend on how fast the hole is drilled.

8. There is no current liquid or solid waste collection/treatment/disposal procedure at the site.

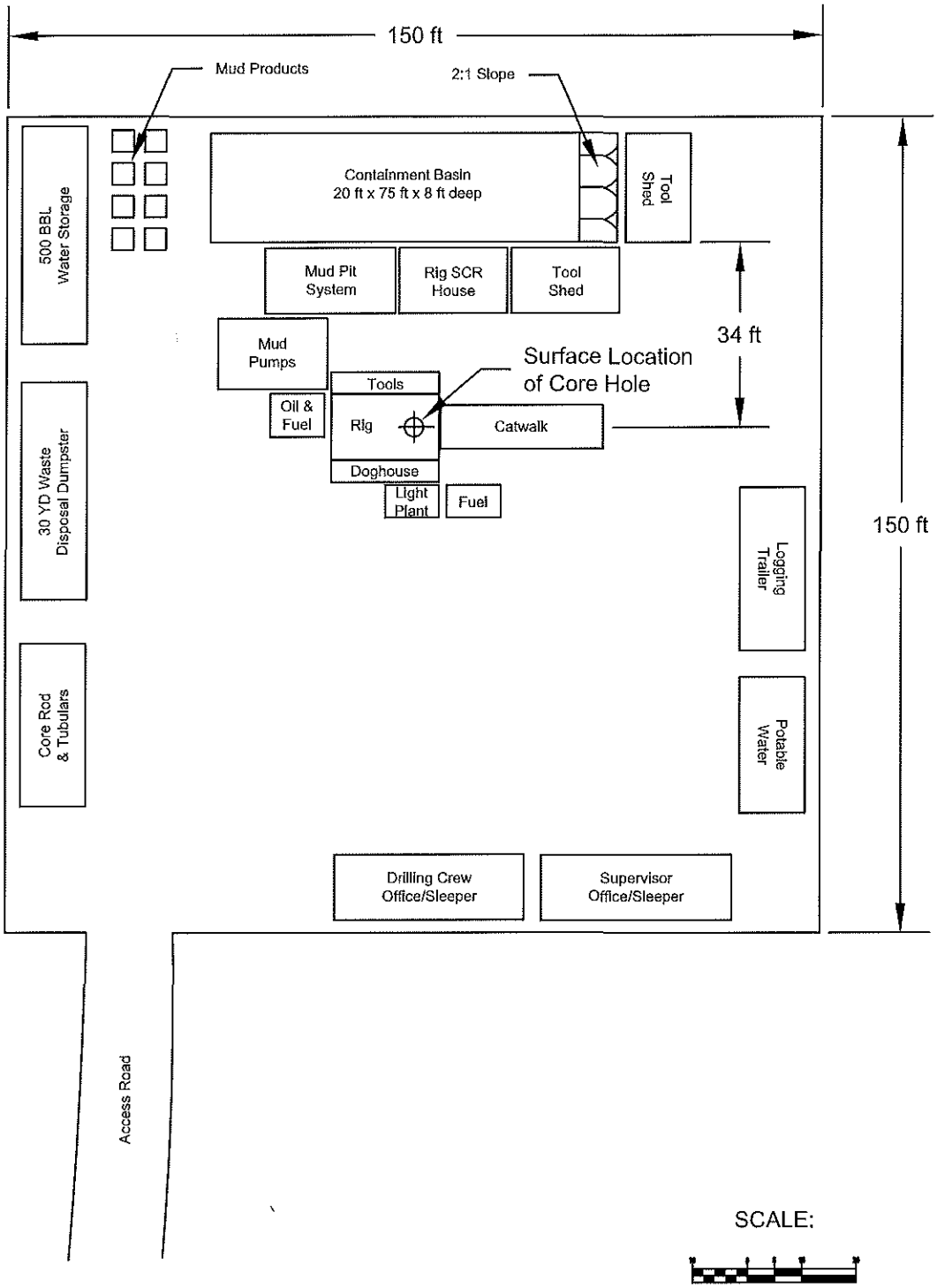
9. There are no modifications proposed as there is no existing collection/treatment/disposal system.

10. There is currently no permit from the OCD for this project and there are no facilities on site to inspect.

11. Ormat's Drilling Program outlines emergency and spill response.

12. A TGH was drilled in 1995. The mud log for this hole is enclosed. Groundwater was encountered at 305 feet. No water analysis is available. Well RAD-7 was drilled approximately 0.4 miles north of the 32-4 location and groundwater was encountered at 450 feet. An analysis of this water is enclosed.

13. TGH 32-4 will remain upon for completion to monitor downhole temperatures. The drilling rig and equipment will be removed. The temporary pit will be cleaned out in accordance with the requirements of Title 19 Chapter 15 Park 17 of the OCD's rules. Those will accompany permit C-144 for the temporary pit.



TYPICAL CORE RIG DRILL PAD LAYOUT

Table 1. Chemistry of water from RAD-7.

.4 miles north of 32-4 @ 450'

TEMP °C	pH	TDS mg/L	Na mg/L	K mg/L	Ca mg/L	Mg mg/L	Li mg/L	HCO3 mg/L	Cl mg/L	SO4 mg/L	SIO2 mg/L
65.0 (149°F)	7.1	1924	601.2	57.8	48.5	5.1	0.69	212.3	666.7	343.1	116.7

Newpark Drilling Fluids, LLC

410 17th STREET ■ SUITE 460 ■ DENVER, COLORADO 80202 ■ (303) 623-2205 ■ FAX (720) 904-7970

Ormat

Rincon, NM
FOB Winnemucca, Evanston WY or Casper WY

New Gel (high yield)	50lbs	$6.50
Hole Plug 3/8	50lbs	$6.95
Hole Plug 3/4	50lbs	$6.95
Hole Plug #8	50lbs	$6.95
Abantonite	50lbs	$11.98
New Pac R	50lbs	$155.00
New Pac LV	50lbs	$157.00
New SPA	50lbs	$182.00
Dynalose CM/Aqua Bloc	50lbs	$119.00
New PHPA	5gal	$82.80
NDFX 242	5gal	$138.50
N100	5gal	$93.20
New Ease 203	5gal	$124.50
Deep Drill	5gal	$89.50
LST-MD	5gal	$92.50
NDFX 233	5gal	$155.00
New Foam	5gal	$88.00
Core Tube Lube	5gal	$122.00
Soda Ash	50lbs	$15.19
Magma Fiber	25lbs	$52.75
Dyna Fiber	25lbs	$53.00
Shredded Paper	40lbs	$19.30

Additional Prices upon request
Any third party charges to be billed at cost plus 15%
Any applicable taxes will be added
Prices subject to change with notice
no charge pallet and shrink

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-101
Adopted 10-1-74
Revised 10-1-78

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U.S.G.S.		
Operator		
Land Office		

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK--GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE ☐ BLM FEE ☐

5.a State Lease No.

1a. Type of Work: Drill ☒ Deepen ☐ Plug Back ☐

b. Type of Well: Geothermal Producer ☐ Low-Temp Thermal ☐ Temp Observation ☒ Injection/Disposal ☐

7. Unit Agreement Name

8. Farm or Lease Name

2. Name of Operator: Ormat Nevada Inc.

9. Well No.: TGH 32-4

3. Address of Operator: 6225 Neil Road. Reno, NV 89511

10. Field and Pool, or Wildcat

4. Location of Well: UNIT LETTER C LOCATED 1265 FEET FROM THE North LINE AND 1485 FEET FROM THE West LINE OF SEC. 4 TWP. 19S RGE. 2W NMPM

12. County: Dona Ana

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
4000'	Paleozoic Bedrock	Rotary and Core

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
4378'	GT B1 $5000	GeoDrill LLC	June 15, 2015

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8.5	7	23	40'	13.93	Surface
6.25	4.5	11.6	600'	129	Surface
3.895	2.375	4.7	TD - 3500	0	NA

See attached drilling program.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed Charlene R Waddow Title Director Business Development Date 01-09-15

(This space for State Use)

APPROVED BY Carl J. Chavez TITLE Environmental Engineer DATE 5/21/2015

CONDITIONS OF APPROVAL, IF ANY:

* See attached conditions of approval.

ORMAT Nevada, Inc. Geothermal Project
Thermal Gradient Well 32-4 (TGH 32-4)

G-101 Form
OCD Artesia District Office
Conditions of Approval (5/21/2015)

1) The operator shall obtain an OCD well bond approval letter in advance of any well drilling activity.

2) "Thermal gradient well" (TGW) shall mean a well drilled or used solely for temperature observation purposes, and shall not be completed as a geothermal producing well or as an injection or disposal well.

3) The operator shall satisfy the G-103 Sundry requirement to request OCD approval for directional drilling of the well.

4) The operator shall follow the OCD Geothermal Resources Conservation Act and Geothermal Administrative Code whenever the operator's "Drilling Program Rincon Core Hole 32-4 (April 2014) deviates from OCD applicable geothermal regulations.

5) The operator shall plug and abandon the TGW within 6-months of well completion.

6) The operator shall submit daily electronic drilling reports up to well completion to OCD Santa Fe and Artesia Offices.

7) The operator shall implement API Class 2M-RSRA or equivalent Blowout Prevention Equipment (BOPE) per 19.14.102.8(A)2 NMAC on the well. Blowout equipment testing shall be conducted per 19.14.104.8 NMAC. Blowout notification per 19.14.36.8 NMAC shall be implemented in the event of a blowout.

8) Pits shall be constructed with liners that can handle elevated temperatures and meet the technical requirements of OCD's Pit Rule with respect to siting, construction, operation and closure.

9) Geothermal exempt wastes, i.e., drill cuttings, shall be disposed at a RCRA waste disposal facility approved to receive "special wastes" in accordance with 40 CFR part 261 or as approved by OCD. Produced fluids and/or H2S derived waste are considered to be "oilfield exempt" wastes that may be treated and/or disposed in a UIC Class II SWD Well or at an OCD permitted Surface Waste Management Facility.

10) Well environmental quality sampling: groundwater quality samples shall be collected at the water table during drilling if the well starts to flow. All attempts will be made to prevent the well from flowing prior to casing point. All drinking water aquifers will be placed behind casing down to 600 ft. and will be protected from cross-flow of any deeper feed zones. A composite groundwater sample will be collected prior to plug and abandonment of the well. All samples need to be analyzed for state water quality standards. Furthermore, the operator shall implement well completion measures that protect protectable groundwater (< 10,000 ppm TDS) by the following:

a. All water quality sampling and laboratory methods shall adhere to ASTM E947-83 and EPA Quality Assurance/Quality Control (QA/QC) and Data Quality Objectives (DQOs).
b. Adequate water containment will be necessary to circulate the hole for clean sampling representative of the formation to satisfy sampling requirements.
c. OCD may require water quality sample collection and environmental analytical laboratory analyses for specified parameters if well deepening is requested, and/or as otherwise required.
d. If the operator determines that groundwater produced during the sampling process is greater than 10,000 mg/L TDS, then it must immediately contact OCD for further instructions.

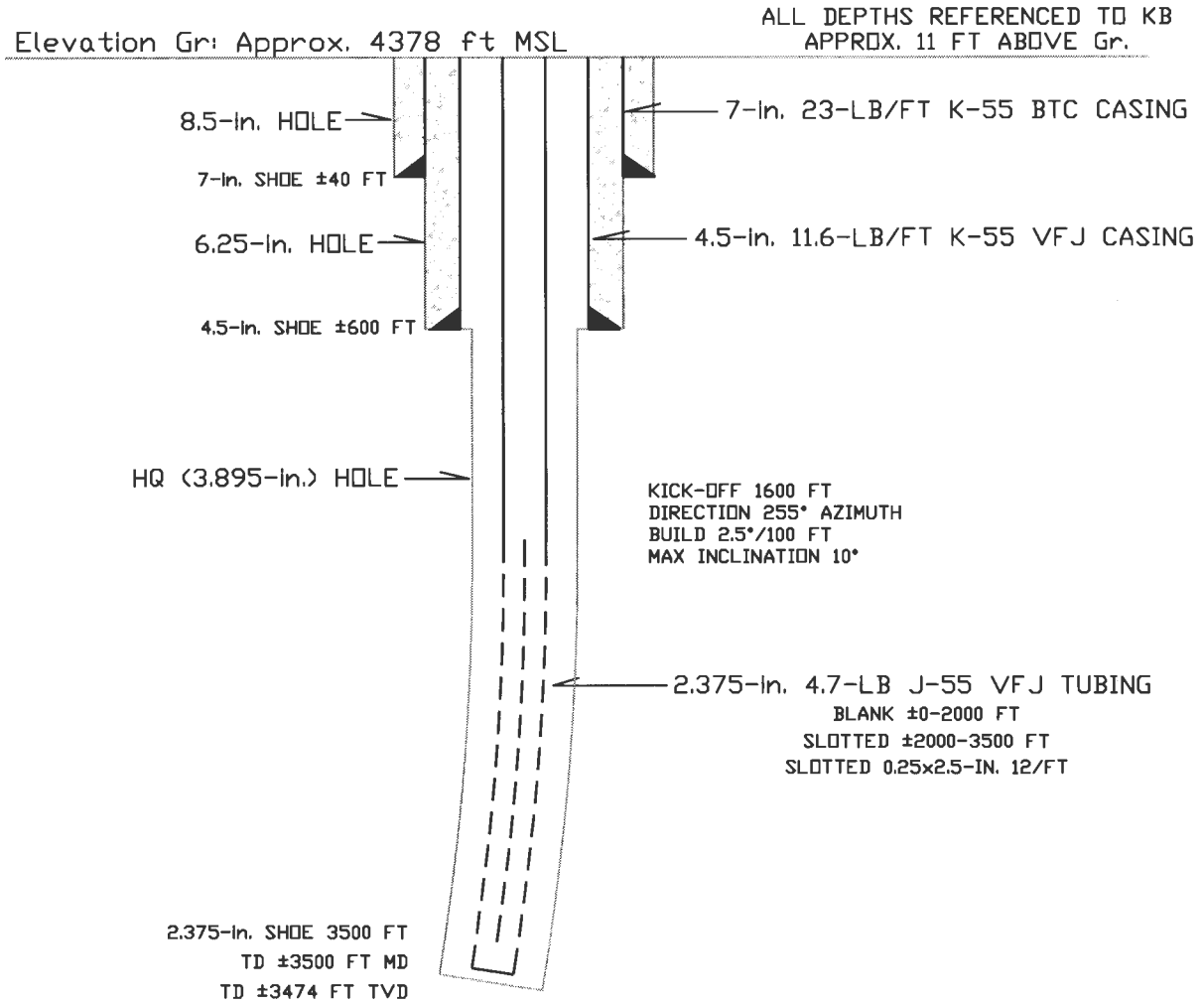
11) The operator shall comply with the terms and conditions of' the Geothermal Regulations (Chapter 71, Article 5 NMSA 1978 and Title 19, Chapter 14 NMAC). Since injection wells may also become production wells, all Underground Injection Control (UIC) Class V Geothermal Injection Wells shall comply with all reasonable conditions or requirements set by the OCD (USEPA NM UIC Program Primacy Agency) to protect the environment and public health. UIC Class V Injection Wells shall comply with applicable Federal regulations, i.e., 40 CFR 144, Subpart G; 40 CFR 144.81(11) - 83 and operational requirements of 40 CFR Parts 144 through 147.

Please be advised that OCD approval does not relieve ORMAT Nevada, Inc. from responsibility should its operations pose a threat to groundwater, subsurface trespass, water supply/diversion, surface water, human health or the environment. In such event, OCD may order the operator to plug and abandon its well pursuant to the geothermal regulations. In addition, OCD approval does not relieve ORMAT Nevada, Inc. of responsibility for compliance with any other federal, state, or local laws and/or regulations.

FIGURE 2
PROPOSED OBSERVATION WELL 32-4
RINCON PROSPECT
NEW MEXICO

Location UTMs NAD83, 13N: 307289 mE 3618678 mN

Location Lat/Long: 32.69° N, 107.06° W



NOT DRAWN TO SCALE

BOTTOM HOLE LOCATION
APPROX. ±286 FT WEST, ±77 FT SOUTH

ORMAT NEVADA
4/11/2014

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Adopted 10-1-74
Revised 10-1-78

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Ormat Nevada Inc.	Geothermal NMNM 125605	TGH 32-4

Unit Letter	Section	Township	Range	County
C	4	19 S	2W	Dona Ana

Actual Footage Location of Well: 1265 feet from the North line and 1485 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
4378 ft	N/A	N/A	N/A Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. N/A

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). N/A

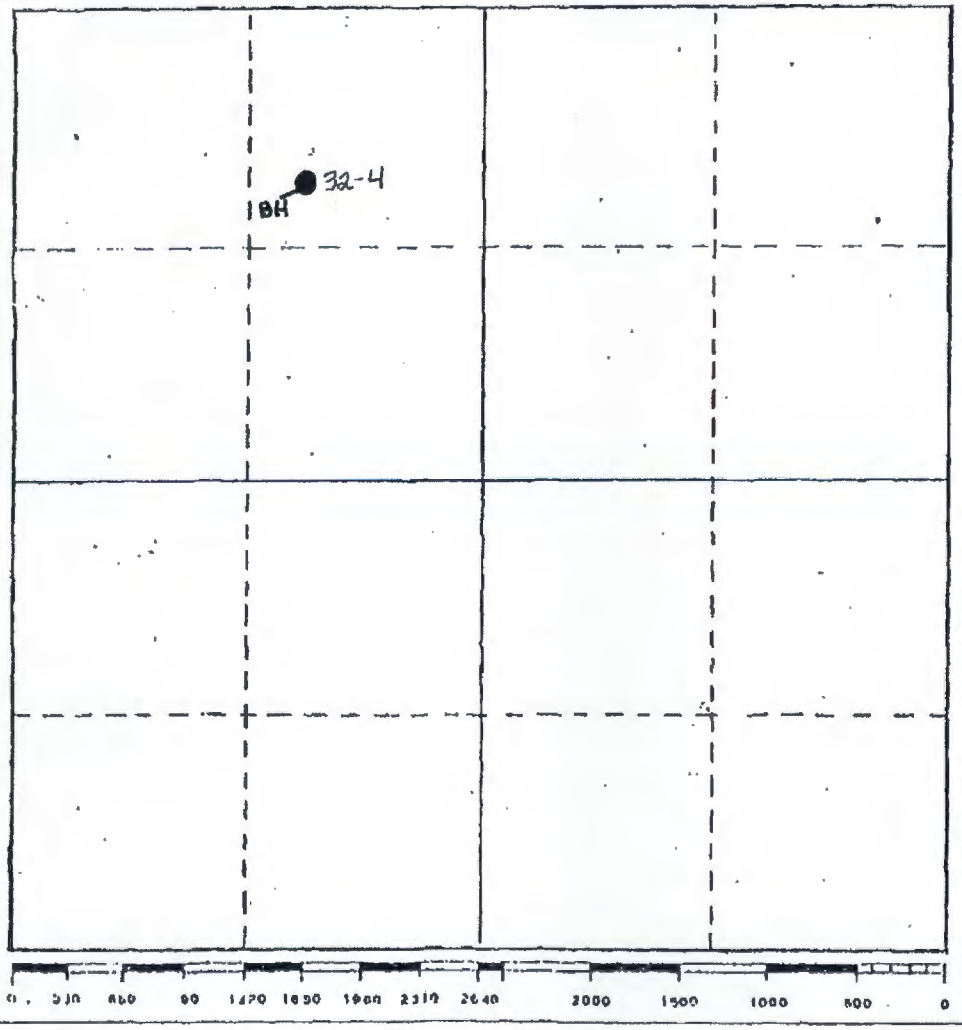
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc? N/A - All BLM

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.

Section 4



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Charlene Wardlow

Name: Director Business Development

Position: Ormat Nevada Inc.

Company:

Date: January 9, 2015

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

NA

Date Surveyed:

Registered Professional Engineer and/or Land Surveyor:

Certificate No.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-103
Adopted 10-1-74
Revised 10-1-78

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SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State ☐ BLM Fee ☐
5.a State Lease No.

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit —" (Form G-101) for Such Proposals.)

1. Type of well: Geothermal Producer ☐ Temp. Observation ☒ Low-Temp Thermal ☐ Injection/Disposal ☐
7. Unit Agreement Name

2. Name of Operator: Ormat Nevada Inc.
8. Farm or Lease Name

3. Address of Operator: 6225 Neil Rd. Reno, NV 89511
9. Well No.: TGH 32-4

4. Location of Well: Unit Letter 1265 Feet From The North Line and 1485 Feet From The West Line, Section 4 Township 19 S Range 2W NMPM.
10. Field and Pool, or Wildcat: Rincon

15. Elevation (Show whether DF, RT, GR, etc.): 4378'
12. County: Dona Ana

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐			COMMENCE DRILLING OPNS.	☐	PLUG & ABANDONMENT	☐
PULL OR ALTER CASING	☐	CHANGE PLANS	☐	CASING TEST AND CEMENT JOB	☐		
OTHER Directionally	☐			OTHER			☐

17. Describe Proposed or completed Operations *(Clearly state all pertinent details, and give pertinenet dates, including estimated date of starting any proposed work)* SEE RULE 203.

See attached Directional proram - Appendix D of Drilling program

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Charlene L Warddow TITLE Director Business Development DATE 01-09-15

APPROVED BY [signature] TITLE Environmental Bureau Chief DATE 5/21/15

CONDITIONS OF APPROVAL, IF ANY:

★ See attachments.

APPENDIX D

DIRECTIONAL PLAN

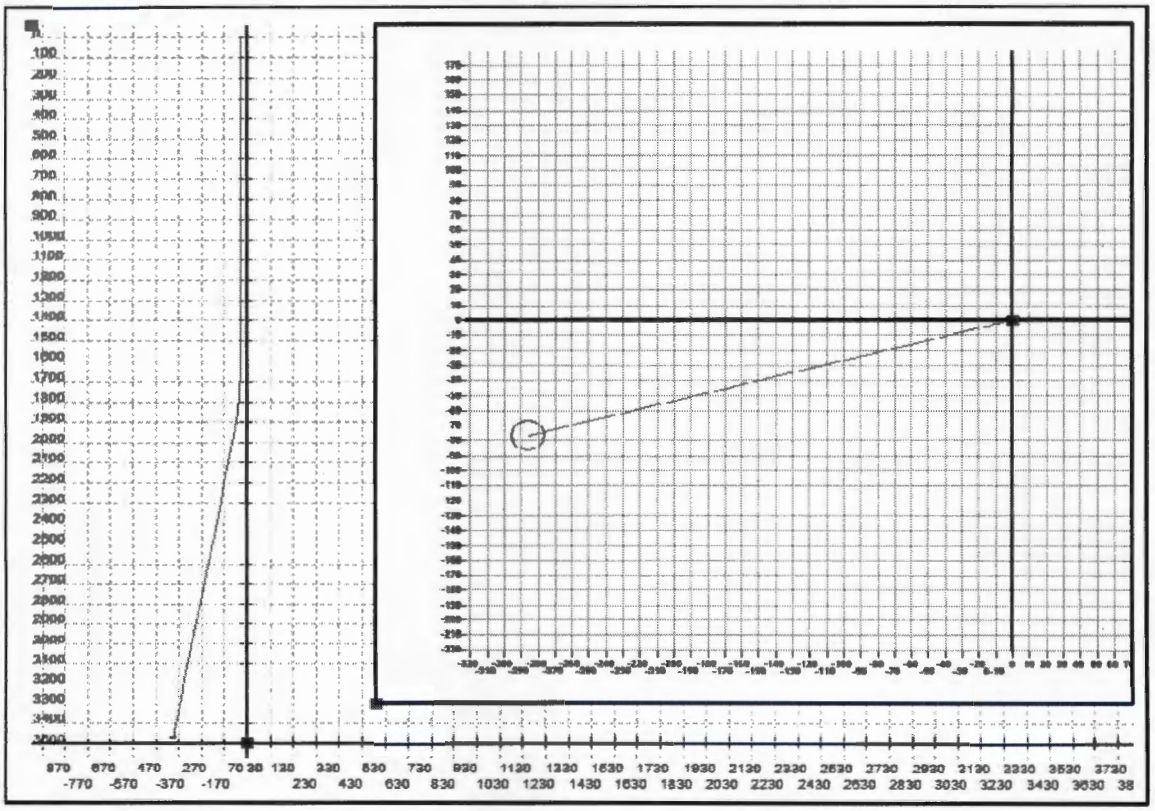
DRILLING PROGRAM RINCON CORE HOLE 32-4
Rincon Prospect, Doña Ana County, NM

ORMAT NEVADA INC.
April 23, 2014

Ormat Nevada Inc. – Drilling Office
6225 Neil Road
Reno, NV 89511

Directional Plan:
Kick-Off: 1600 ft
Azimuth: 255° (S75°W)
Build Rate: 2.5° / 100 ft
Max Inclination: 10°
Total Measured Depth: 3500 ft MD
Total Vertical Depth: 3474 ft TVD
Bottom Hole Location: ~286 ft west, ~77 ft south

IDS ORMAT Technologies Directional Drilling Plot for Proposed Core Hole CX 32-4

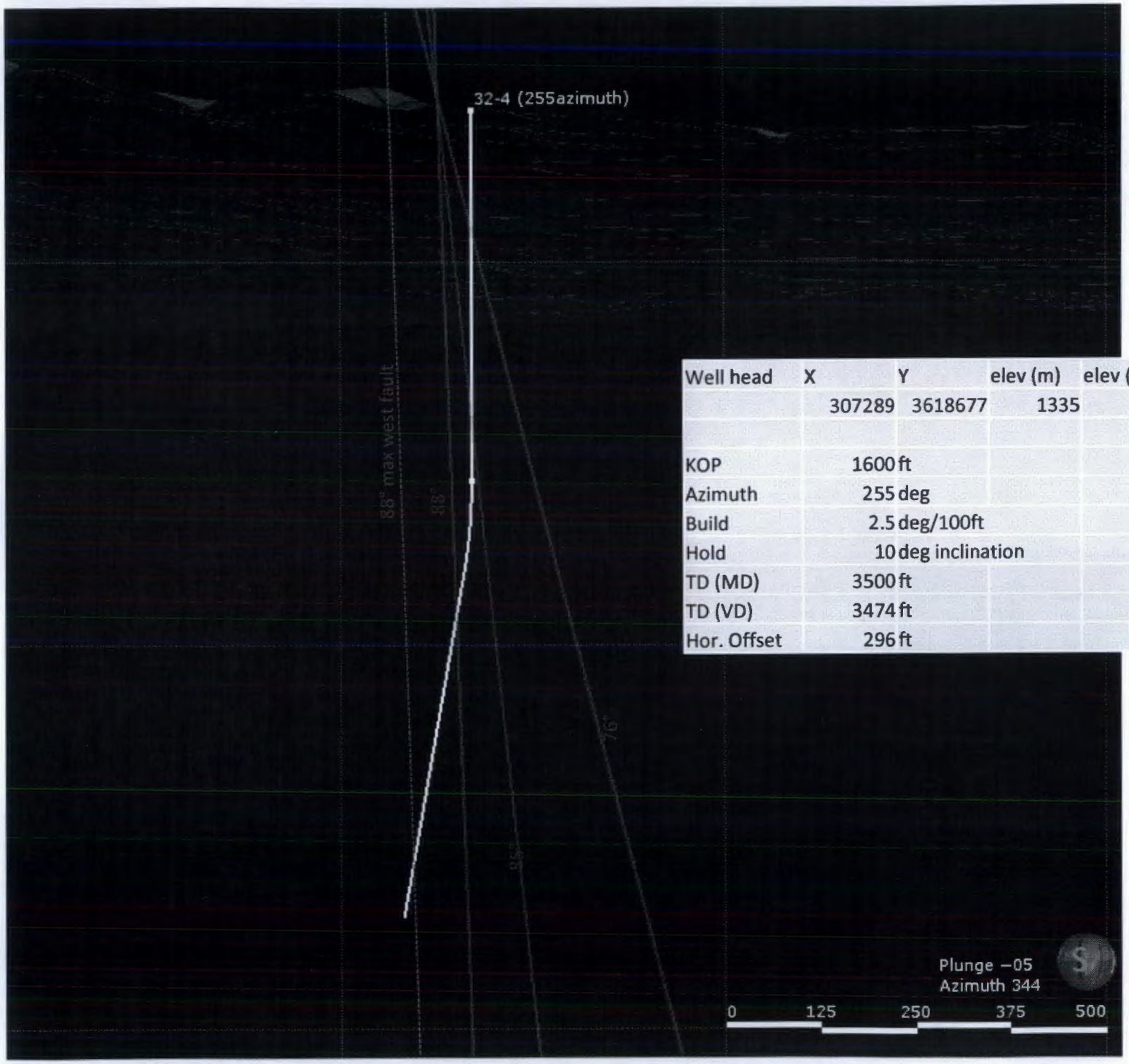


Ormat Nevada Inc. – Drilling Office
6225 Neil Road
Reno, NV 89511

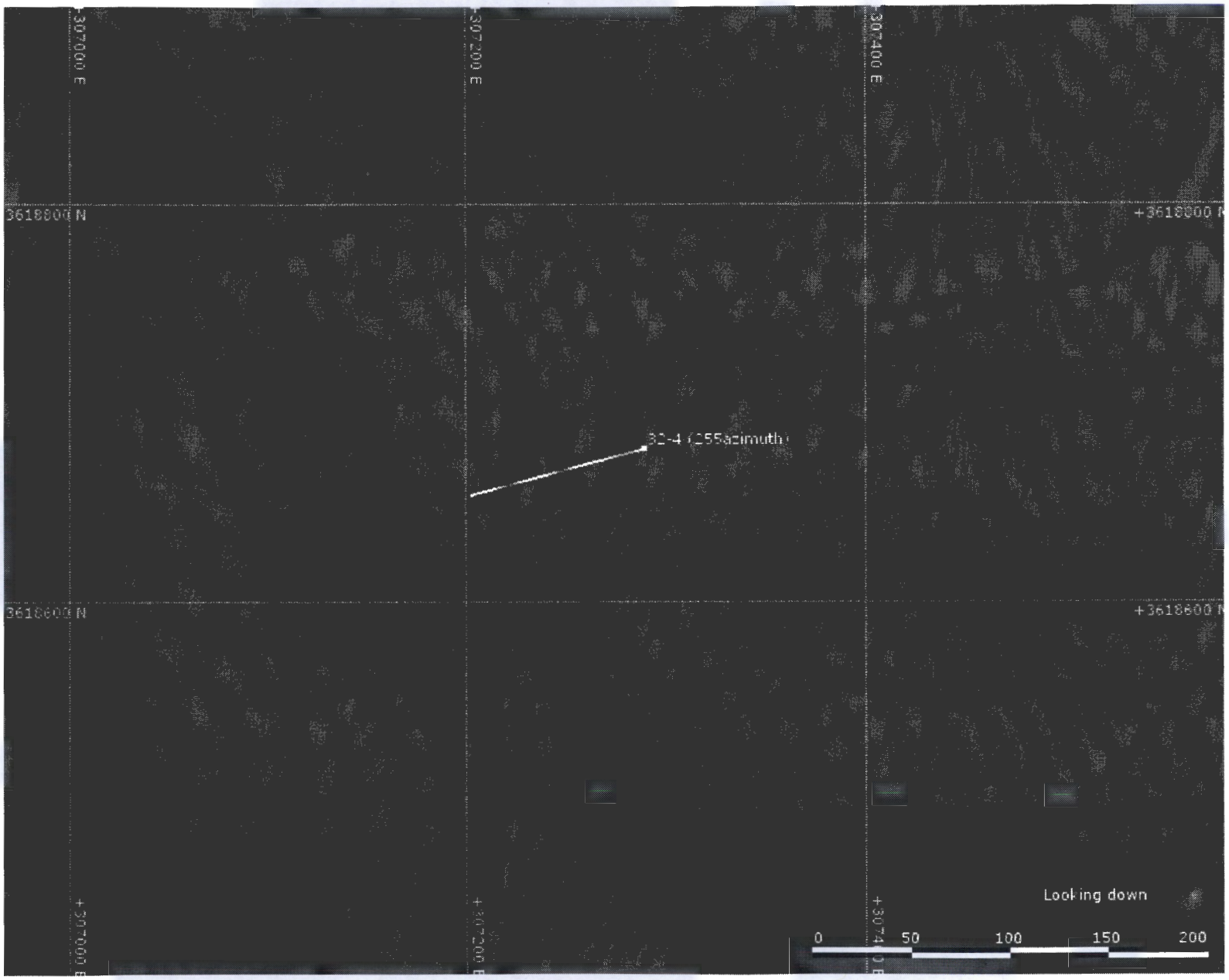
ORMAT Technologies Proposed Core Hole CX 32-4

DIRECTIONAL SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 255.00
Vertical Section Referenced to offset from Wellhead: EW =.00 Ft, NS=.00 Ft
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	True Vertical Depth	Incl Angle Deg	Drift Direction Deg	N-S FT	E-W FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	100.00	.00	.00	.00	.00	.00	.00	.00
200.00	200.00	.00	.00	.00	.00	.00	.00	.00
300.00	300.00	.00	.00	.00	.00	.00	.00	.00
400.00	400.00	.00	.00	.00	.00	.00	.00	.00
500.00	500.00	.00	.00	.00	.00	.00	.00	.00
600.00	600.00	.00	.00	.00	.00	.00	.00	.00
700.00	700.00	.00	.00	.00	.00	.00	.00	.00
800.00	800.00	.00	.00	.00	.00	.00	.00	.00
900.00	900.00	.00	.00	.00	.00	.00	.00	.00
1000.00	1000.00	.00	.00	.00	.00	.00	.00	.00
1100.00	1100.00	.00	.00	.00	.00	.00	.00	.00
1200.00	1200.00	.00	.00	.00	.00	.00	.00	.00
1300.00	1300.00	.00	.00	.00	.00	.00	.00	.00
1400.00	1400.00	.00	.00	.00	.00	.00	.00	.00
1500.00	1500.00	.00	.00	.00	.00	.00	.00	.00
1600.00	1600.00	.00	255.00	.00	.00	.00	.00	.00
1620.00	1620.00	.50	255.00	-.02	-.08	.09	255.00	2.50
1640.00	1640.00	1.00	255.00	-.09	-.34	.35	255.00	2.50
1660.00	1659.99	1.50	255.00	-.20	-.76	.79	255.00	2.50
1680.00	1679.98	2.00	255.00	-.36	-1.35	1.40	255.00	2.50
1700.00	1699.97	2.50	255.00	-.56	-2.11	2.18	255.00	2.50
1720.00	1719.95	3.00	255.00	-.81	-3.03	3.14	255.00	2.50
1740.00	1739.91	3.50	255.00	-1.11	-4.13	4.27	255.00	2.50
1760.00	1759.87	4.00	255.00	-1.44	-5.39	5.58	255.00	2.50
1780.00	1779.82	4.50	255.00	-1.83	-6.82	7.06	255.00	2.50
1800.00	1799.75	5.00	255.00	-2.26	-8.42	8.72	255.00	2.50
1820.00	1819.66	5.50	255.00	-2.73	-10.19	10.55	255.00	2.50
1840.00	1839.56	6.00	255.00	-3.25	-12.13	12.55	255.00	2.50
1860.00	1859.44	6.50	255.00	-3.81	-14.23	14.73	255.00	2.50
1880.00	1879.30	7.00	255.00	-4.42	-16.50	17.08	255.00	2.50
1900.00	1899.14	7.50	255.00	-5.07	-18.94	19.61	255.00	2.50
1920.00	1918.96	8.00	255.00	-5.77	-21.54	22.30	255.00	2.50
1940.00	1938.75	8.50	255.00	-6.52	-24.32	25.17	255.00	2.50
1960.00	1958.52	9.00	255.00	-7.30	-27.25	28.22	255.00	2.50
1980.00	1978.26	9.50	255.00	-8.13	-30.36	31.43	255.00	2.50
2000.00	1997.97	10.00	255.00	-9.01	-33.63	34.82	255.00	2.50
2001.38	1999.33	10.03	255.00	-9.07	-33.86	35.06	255.00	2.50
2101.38	2097.81	10.03	255.00	-13.58	-50.69	52.48	255.00	.00
2201.38	2196.28	10.03	255.00	-18.09	-67.53	69.91	255.00	.00
2301.38	2294.75	10.03	255.00	-22.60	-84.36	87.33	255.00	.00
2401.38	2393.22	10.03	255.00	-27.11	-101.19	104.76	255.00	.00
2501.38	2491.69	10.03	255.00	-31.62	-118.02	122.18	255.00	.00
2601.38	2590.16	10.03	255.00	-36.13	-134.85	139.60	255.00	.00
2701.38	2688.63	10.03	255.00	-40.64	-151.68	157.03	255.00	.00
2801.38	2787.10	10.03	255.00	-45.15	-168.51	174.45	255.00	.00
2901.38	2885.57	10.03	255.00	-49.66	-185.34	191.88	255.00	.00
3001.38	2984.04	10.03	255.00	-54.17	-202.17	209.30	255.00	.00
3101.38	3082.51	10.03	255.00	-58.68	-219.00	226.73	255.00	.00
3201.38	3180.98	10.03	255.00	-63.19	-235.83	244.15	255.00	.00
3301.38	3279.45	10.03	255.00	-67.70	-252.66	261.57	255.00	.00
3401.38	3377.92	10.03	255.00	-72.21	-269.49	279.00	255.00	.00
3498.96	3474.00	10.03	255.00	-76.61	-285.91	296.00	255.00	.00



Well head	X	Y	elev (m)	elev (ft)
	307289	3618677	1335	4378
KOP	1600	ft		
Azimuth	255	deg		
Build	2.5	deg/100ft		
Hold	10	deg inclination		
TD (MD)	3500	ft		
TD (VD)	3474	ft		
Hor. Offset	296	ft		


307000 E
307200 E
307400 E
3618800 N
3618600 N
32-4 (255azimuth)
Looking down
0
50
100
150
200