

September 19, 1996

Mr. Peter DeSantis BP Oil Company 295 S.W. 41st Street Renton, Washington 98055 BP 01L CO.
ENVIRONMENTALE
WEST CO. ST. 61

20-008-003-02

Subject:

Remediation System Well Installations

BP Oil Company Service Station No. 11066

2421 148th Avenue N.E. Bellevue, Washington

Dear Mr. DeSantis:

BP Oil Company retained Alisto Engineering Group to install 13 air sparging and/or dual completion (air sparging and vapor extraction) wells at BP Oil Company Service Station No. 11066, 2421 148th Avenue N.E., Bellevue, Washington. The work was performed as part of the proposed remediation system. The well locations are shown on the attached site plan.

Before drilling, well start cards were acquired from the Washington State Department of Ecology by the drilling contractor, Geo-Tech Explorations. Copies of the start cards are attached. Seven dual completion wells (CW1 through CW-7) and six air sparging wells (SP-2 through SP-7) were completed between July 15 and 22, 1996. The borings were drilled to depths ranging from 37 to 38 feet using a truck-mounted drilling rig with hollow-stem augers. During drilling, soil cuttings were logged using the Unified Soil Classification System indicating soil type, color, and moisture content. Soil cuttings were also field-screened for organic vapors using a photo-ionization detector.

The wells were constructed in the borings through the auger to centralize the well casing and minimize the introduction of native material into the annulus space. In the dual completion wells, the air sparging wells were constructed of 1-inch-diameter schedule 40 poly-vinyl chloride (PVC) 0.010-inch slotted casing at the bottom 2 feet, with blank casing to approximately 2 feet below grade. The vapor extraction wells were constructed of 2-inch diameter PVC 0.010-inch slotted casing.

The annular space at the screened portion of the air sparging wells were backfilled with 10/20 sand (filter pack) to approximately six inches above the top of the screened section. Approximately 6 inches of bentonite was added to the annulus above the filter pack and hydrated to minimize intrusion of cement into the filter pack. The remaining annulus was then sealed with neat cement grout to between 21 and 25 feet. The augers were extracted to above the grout and left in-place overnight while the cement grout cured.

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Mr. Peter DeSantis September 19, 1996 Page 2

The vapor extraction wells were installed within the same borehole as the air sparging wells. Each vapor extraction well was constructed with 2-inch-diameter PVC 0.010-inch slotted section from the top of the lower grout layer to between 5 and 7 feet below grade, and blank section from the top of the slotted casing to approximately 6 inches below grade.

The screened portion of the vapor extraction wells were backfilled with 10/20 sand to approximately 6 inches above the top of the screened interval. Approximately 6 inches of bentonite was added to the annulus above the filter pack and hydrated. The remaining annulus was sealed with cement to approximately 10 inches below grade. The surface seal was constructed with 6 inches of sand covered by 3 inches of quick-set concrete.

Sparging wells SP-2 through SP-7 were constructed with 2-inch-diameter PVC 0.010-inch slotted casing. The screened section of SP-2 extends from 36 to 37 feet, and the screened sections of SP-3 through SP-7 extend from 35 to 37 feet. Solid PVC casing was installed above the screened intervals to within 6 inches of grade. The annular space at the screened section was backfilled with 10/20 sand to approximately 6 inches above the screened interval. Approximately 6 inches of bentonite was added to the annulus above the filter pack, and the remainder of the annulus was sealed with neat cement grout to approximately 1 foot below grade. Sparging well SP-7 was constructed as above; however, the annular space above the filter pack was sealed to one foot below grade with bentonite chips and hydrated. The borings logs including details of well construction are included as attachments.

Please call if you have questions or comments.

Sincerely,

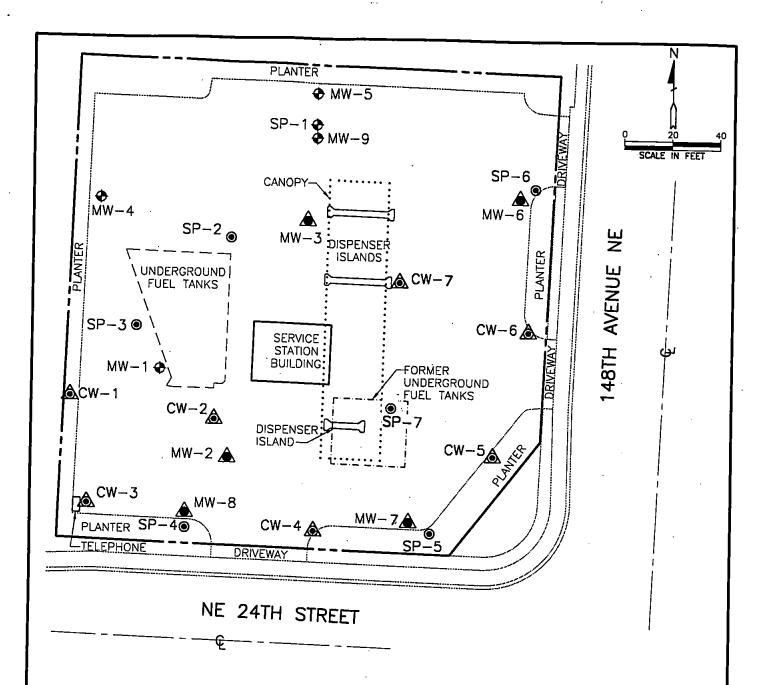
ALISTO ENGINEERING GROUP

Craig W. Ware, R.G. Project Manager

Attachments

Attachments

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#### **LEGEND**

- GROUNDWATER MONITORING WELL
- VAPOR EXTRACTION WELL
- AIR SPARGING POINT
- DUAL COMPLETION AIR SPARGING/ VAPOR EXTRACTION WELL

#### FIGURE 1

#### SITE PLAN

BP OIL SERVICE STATION NO. 11066 2421 148TH AVENUE N.E. BELLEVUE, WASHINGTON

PROJECT NO. 20-008



				GE	OLO	GIC	LEGEND		
			. OR NES		GW	Well-g	raded gravels, gravel—sand mixtures, little or es		
		RAVELS	LITTLE OR NO FINES	•	GP	Poorly	-graded gravels, gravel-sand mixtures		
S	of	ore than 1/2 coarse fraction No. 4 Sieve	APPRECIABLE NO FINES		GM	Silty g	ravels, gravel—sand—silt mixtures		
SOILS			APPRE NO F		GC	Clayey	gravels, gravel—sand—clay mixtures		
RAINE		·	LITTLE OR NO FINES		SW	Well-g	raded sands, gravelly sands, little or no fines		
COARSE-GRAINED	SA	NDS	NO I		SP	Poorly-	-graded sands, gravelly sands, little or no fines		
<b>V</b> 00	of	ore than 1/2 coarse fraction No. 4 Sieve	APPRECIABLE NO FINES		SM	Silty s	nds, sand-silt mixtures		
			APPRE NO F		SC	Clayey	sands, sand-clay mixtures		
					ML	Inorgai clayey	nic silts and very fine sands, rock flour, silty or fine sands or clayey silts with slight plasticity		
OILS		SILTS AND CLAY Liquid limit < 5			CL	Inorgai	nic clays of low to medium plasticity, gravelly sandy clays, silty clays, lean clays		
NED S					OL		c silts and organic silty clays of low plasticity		
FINE—GRAINED SOILS		SILTS AND CLAY			MH	Inorgar or silty	nic silts, micaceous or diatomoceous fine sandy v soils, elastic silts		
		Liquid limit > 5	) 		СĤ	Inorgar	nic clays of high plasticity, fat clays		
					ОН	Organio silts	c clays of medium to high plasticity, organic		
HIG	HL	ORGANIC SOILS			Pt	Peat a	nd other highly organic soils		
SYMBO	OL_	LEGEND:							
	3 c	Cement							
	] s	Sand				i			
	8	entonite					LEGEND TO BORING LOGS		
		riven Interval of soil Sample					BP OIL STATION NO. 11066		
	s	ample preserved for nalysis	poss	ible			2421 148TH AVENUE NORTH BELLEVUE, WASHINGTON		
X		o sample recovered					PROJECT NO. 20-008		
<del> </del>	s	tabilized water level					ALISTO ENGINEERING GROUP		
₹	G	roundwater level enco	ounte	red di	uring o	drilling	TUKWILA, WASHINGTON		

ALISTO ENGINEERING GROUP TUKWILA, WASHINGTON	LOG OF BORING SP-2 Page 1	of 1
SEE SITE PLAN	ALISTO PROJECT NO: 20-008-03  CLIENT: BP Oil Company  LOCATION: 2421 148th Avenue NE, Bellevue, Washington  DRILLING METHOD: Hollow-Stem Auger (10"); logged by cuttings  DRILLING COMPANY: Geotech Exploration  LOGGED BY: J. Day  APPROVED BY: Al Sevilla	
BLOKS/6 IN. PID VALUES METT DYAUGES	GEOLOGIC DESCRIPTION	
2' 0.010 Slotted PVC Screen  2' 0.010 Slotted PVC Screen  2' Sch. 40 PVC	3" asphalt over 12" agregate base.  SM silty SAND: olive gray, moist; fine— to medium—grained sand.  12—  18—  24—  30—  Boring terminated at 37 feet.	

		TO ENGINEERING GROUP UKWILA, WASHINGTON				L	ЭG	OF BORING SP-3 Page 1 of 1
			Α	LIȘT	) P	ROJE	СТ	NO: 20-008-03 DATE DRILLED: 07/18/98
Ì			C	LIEN	Τ:	BP	OII C	'ampany
	SEE	SITE PLAN				_		148th Avenue NE, Belleyue, Washington
			1					: Hollow-Stem Auger (10"); logged by cuttings
•		:	_					Y: Geotech Exploration CASING ELEVATION:
<b>-</b>	T 40	<u> </u>	Ļ	OGGE	D E		J. []	ay APPROVED BY: AI Sevilla
BLOWS/6 IN.	PID VALUES	WELL DIAGRAN		OEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
				-		•     •	SM	3" asphalt over 8" agregate base.
		- 2	#10/20 Sand	6-12-18-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			מ	silty SAND: olive, moist; fine— to coarse-grained sand; occasional gravel; some wood debris.  Same: at 5 feet, olive gray, moist; fine— to medium—grained sand; trace of coarse sand and gravel up to 2—inch—diameter.  Same: at 10 feet, light brown; predominantly fine—grained sand.
								Boring terminated at 37 feet.

(A)		O ENGINEERING GROUP JKWILA, WASHINGTON				L(	)G	OF BORING SP-4 Page 1 of 1				
			AL:	ISTO	PF	OJE	CT	NO: 20-008-03 DATE DRILLED: 07/17/98				
			CL:	CLIENT: BP Oil Company								
,	SEE	SITE PLAN	Ö	LOCATION: 2421 148th Avenue NE, Bellevue, Washington								
`		STIE FLAN	DR	ILLI	NG	MET	HOE	: Hallow-Stem Auger (8"); logged by cuttings				
			DR	ILLI	NG	COM	1PAN	Y: Geotech Exploration CASING ELEVATION:				
			LO	GGEI	J B	Y:	J. D	ay APPROVED BY: AI Sevilla				
BLOWS/6 IN.	PTD VALUES	WELL DIAGRAN	חבסבת	feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION				
		Control Stated PVC Screen	2	0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			SM.	silty SAND: yellow brown; fine— to coarse—grained sand; some gravel.  Same: at 5 feet, color change to alive gray; decrease in silt.  Same: at 11 feet, light olive gray; increase in gravels and cobbles.				
				1 1 1 1				Boring terminated at 37 feet.				

		O ENGINEERING GROUP UKWILA, WASHINGTON		L(	) G	OF BORING SP-5 Page 1 of 1							
ļ			ALISTO	ROJE	CT	NO: 20-008-03 DATE DRILLED: 07/18/98							
				CLIENT: BP Oil Company									
	SEE	SITE PLAN		LOCATION: 2421 148th Avenue NE, Bellevue, Washington									
Ì						: Hollow-Stem Auger (8"); logged by cuttings							
			DRILLING	COM	PAN	Y: Geotech Exploration CASING ELEVATION:							
	_		LOGGED	BY:	G.B.	L. APPROVED BY: Al Sevilla							
BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH 188t SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION							
1					थ्र(य	4" bark and mulch							
ļ	i			$ \cdot $ .	DM.	slity SAND: alive gray, dense; fine— to coarse—grained sand; trace gravel.							
			Native Materia										
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			1			Boring terminated at 37 feet.							
			] -										
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							ALIST	0 P	ROJE	ECT	T NO: 20-008-03 DATE DRILLED: 07/22/98	3
						L	CLIEN	T:	BP	OII C	Company	
		SEE	SITE	E PLAN	ı						21 148th Avenue NE, Bellevue, Washington	
1	,				•	[	ORILL:	ING	MET	ГНОП	DD: Hollow-Stem Auger (8"); logged by cuttings	
						[	DRILL:	ING	CON	4PAN	ANY: Geotech Exploration CASING ELEVATION:	
<u> </u>	_						OGGE	DE	3Y:	G.B.	B.L. APPROVED BY: AI Sevilla	
	BLOWS/6 IN. 	PID VALUES		WELL DI	AGRAM		DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS		
							-			Pt OL		
			-2" 0.010 Statted PVC Screen			Neat Cement   Sapa Cap.   Sa	6— 12— 18— 24— 30—			SM	Organic sandy soil: brown with gravel and construction debris.	
			<b>-</b>		<b>-</b>		-  -  -  -				Boring terminated at 38 feet.	

(		ALISTO ENGINEERING GROUP TUKWILA, WASHINGTON								L	06	G 0	FΒ	ORIN	G S	SP-	7		Page	1 of 1	
							AL	IST	) P	ROJ	ECT	NO:	20-00	08-03		DAT	E DRI	LLED:	07/19/98	<del></del>	-
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1							DR	ILLI	NG	CON	4PAN	VY:	Seotec	h Exploration	on	CASI	ING EL	EVATIO	N:		_
-						[	LO	GGE	D E	3Y:	G.B.	3.L.	_			APP	ROVED	BY: A	V Sevilla	_	_
	BLOWS/6 IN.	PID VALUES		WELL DI	IAGRAN	1	0.000	feet	SAMPLES	GRAPHIC LOG	SOIL CLASS			Gi	EOLOG	SIC DE	SCRIPT	ION			
1			1					-					3" asph	alt over 12" a	aggre	gate b	350				7
		>800 >800				HIO/20 Sand Cap.	18			0.0.0.0.0.0			silty SAI sand; tr	ND: allve graace gravel.	y, con	npact;					
													oring te	rminated at	<i>≾(</i> 10€	et.					

		TO ENGINEERING GROUP UKWILA, WASHINGTON			L	OG	OF BORING CW-1	Page 1 of 1
	•		ALIST	O PF	ROJE	ECT I	NO: 20-008-03 DATE DRILLED:	07/18/98
			CLIEN	T:	BP	Oll C	отраny	
	SEE	SITE PLAN	LOCAT	ION	: 2	2421	148th Avenue NE, Bellevue, Washington	<del></del>
1		OTIL TEAN					: Hollow-Stem Auger (10"); logged by cuttings	
							Y: Geotech Exploration CASING ELEVATIO	
			LOGGE	DΒ	Y:	J. Da	ay APPROVED BY: A	l Sevilla
BLOKS/8 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	
			irial.			ML	sandy SILT: brown, moist; fine— to medium—grain	ed sand.
			Native Rateri			SM	silty SAND: light offve brown, moist; fine- to coar sand.	se-grained
				-  -  -			Same: at 8 feet, occasional gravel and cobbles.	
		7' Sch. 40 PVC Casing	12-		0	SW	Same: at 11 feet, color change to light offive gray silt fraction.	·
	ש טטט בייזויים שמט פ	Till Stated PVC Screen  Washingtonite Neat Cement Grout	30-		000	5	SAND: light olive gray, moist to wet; fine— to med sand; trace coarse—grained sand; gravel and cot sand; gravel an	ium-grained obles.

		O ENGINEERING GROUP JKWILA, WASHINGTON		L(	ÓG	OF BORING CW-2 Page 1 of 1
	SEE	SITE PLAN	CLIENT LOCATI DRILLIN	: BP ON: 2 NG MET NG COM	<i>Oil C</i> ? <i>421</i> 'HOC !PAN	148th Avenue NE, Bellevue, Washington : Hollow—Stem Auger (10"); logged by cuttings Y: Geotech Exploration CASING ELEVATION:
BLOWS/8 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		-" 0.010 Statted PVC Screen     Sch.40 PVC Casing	24 30 36 36 36 36 36 36 36 36 36 36 36 36 36		SM SP	silty SAND: yellowish brown, maist; fine— to medium—grained sand; some gravel up to 1 1/2-inch—diameter; high silt fraction.  Same: at 5 feet, light alive brown; decreased silt fraction.  Same: below 12 feet, color changes to alive gray.  SAND: light alive gray, maist; fine— to medium—grained sand; trace of coarse—grained sand and rounded gravel; occasional cobbles.  Boring terminated at 37 feet.

AL.		GINEERING GROUP A. WASHINGTON			L(	)G	OF BORING CW-3	Page 1 of 1				
SE	SEE SITE PLAN					ALISTO PROJECT NO: 20-008-03  CLIENT: BP Oil Company  LOCATION: 2421 148th Avenue NE, Bellevue, Washington  DRILLING METHOD: Hollow-Stem Auger (10"); logged by cuttings  DRILLING COMPANY: Geotech Exploration  CASING ELEVATION:  LOGGED BY: J. Day  APPROVED BY: AI Sevilla						
BLOWS/6 IN	PID VALUES	WELL DIAGRAM	DEPTH feet	<u>"</u>	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION					
	-1" 0.010 Slotted PVC Screen		12 18 24 30 36 36 36 36 36 36 36 36 36 36 36 36 36	,		SM	silty SAND: alive to alive gray, maist; fine- to medius and; some coarse-grained sand.  Same: decreased silt fraction.  SAND: pale alive gray, maist; fine- to coarse-graine fine to 2-inch-diameter gravel; accasional cobbles.  Baring terminated at 37 feet.					

			ERING GRO	OUP			LC	ÖG	OF BORING CW-4 Page 1 of 1
,				_ <b>-</b>					NO: 20-008-03 DATE DRILLED: 07/17/96
	eee	CITE D	a AAI	Γ	LOCAT	IOI	N: 2	421	148th Avenue NE, Bellevue, Washington
	SEE	SITE P	LAN		DRILL	ING	MET	HOL	: Hollow-Stem Auger (10"); logged by cuttings
					DRILL	ING	COM	PAN	Y: Geotech Exploration CASING ELEVATION:
					LOGGE	D E	3Y:	G.B.	L. APPROVED BY: Al Sevilla
BLOWS/6 IN.	PID VALUES	HE	LL DIAGRA	N	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		▎▗┰┖╦	N N		]  -	-			3.5" asphalt over 12" aggregate base
				VC Casing:				SP	SAND: clean sand (backfill) to 4 feet with construction debris.
	30 400+ 430+	, , , , , , , , , , , , , , , , , , ,		Neat Cement Grout   2° 0.010 Statted PVC Screen   2° Sch. 40 PVC Cas	12			SM	slity SAND: clive gray, moist, dense; trace of coarse-grained sand; trace of gravel up to 2-inches-diameter.  Same: at 20 feet, strong hydrocarbon odor.  Boring terminated at 37 feet.
					36-				Boring terminated at 37 feet.

SEE SITE PLAN  OLIENT: BP ON Company LOCATION: 2421 148th Avenue NE, Bellevue, Mashington ORILLING METHOD: Hollow-Stem Auger (10°): lagged by cuttings DRILLING COMPANY: Geotech Exploration CASING ELEVATION: LOGGED BY: G.B.L.  APPROVED BY: AI Sevilla  Security of the sec				NEERING GF WASHINGTON		ALIST	O P			OF BORING CW-5  O: 20-008-03 DATE DRILLED	<b>Page 1 o</b>
DRILLING METHOD: Hallaw-Stem Auger (10"); lagged by cuttings DRILLING COMPANY: Geotech Exploration LOGGED BY: G.B.L.  APPROVED BY: Al Seville  WELL CLAGRAM  WELL CLAGRAM  BY ST ST ST ST ST ST ST ST ST ST ST ST ST						CLIEN	IT:	BP (	Oil Co	mpany	
DRILLING COMPANY: Geotech Exploration CASING ELEVATION:  LOGGED BY: G.B.L.  WELL DIAGRAM  H. 190 J. 1		SEE	SITE	PLAN					-		<del></del>
MELL DIAGRAM  WELL DIAGRAM  WE					}						·
SS TO THAT SHAPES TO THE STATE OF THE STATE					ł					<del> </del>	
Same  4. Sark and muich silty SAND: clive gray, dense; trace of coarse sand and gravel.  Same  Same  12	BLOWS/8 IN.	PID VALUES	,	HELL DIAGR	ian				CLASS		
Same   Same		1	[			1	$\downarrow$		Pt	4" bark and mulch	
Boring terminated at 37 feet.		>250	I* Sch.40 PV		Ž* Sch.40 PVC Ca.	12- 18- 24- 30-				Same Same: at 25 feet, damp, more dense.	e sand and

		O ENGINEERING GROUP UKWILA, WASHINGTON		L	Ġ	OF BORING CW-6 Page 1 of 1
	SEE	SITE PLAN	CLIENT: LOCATIO DRILLING	87 ( N: 2 3 MET 3 COM	<i>OII C.</i> 421 HOD	148th Avenue NE, Bellevue, Washington : Hollow—Stem Auger (10"); logged by cuttings Y: Geotech Exploration CASING ELEVATION:
BLOWS/6 IN	PID VALUES	WELL DIAGRAN	DEPTH feet SAMPLES	ဟ္	SOIL CLASS	GEOLOGIC DESCRIPTION
	>150	Colo Slotted PVC Screen	1   1   1   1   1   1   1   1   1   1		SW	3.5" asphalt over 12" aggregate base silty SAND: clive gray, compact; trace of coarse-grained sand; trace of gravel.  SAND: gray, damp, compact; fine-grained sand.  Boring terminated at 37 feet.

			ERING GROUP			Ĺ	06	OF BORING CW-7 Page 1 of 1
	SEE SITE PLAN					: <i>BF</i> ON: IG ME	Oil ( 2421 THO MPAI	NO: 20-008-03 DATE DRILLED: 07/18/96 Company 148th Avenue NE, Bellevue, Washington D: Hollow-Stem Auger (10"); lagged by cuttings TY: Geotech Exploration CASING ELEVATION:
BLOWS/6 IN.	PID VALUES	WE	ELL DIAGRAM	<u>'</u>		BANTLES ASAPHTO 1 OG	_	L. APPROVED BY: Al Sevilla  GEOLOGIC DESCRIPTION
	15	' Collo Slatted PVC Screen  ' Sch. 40 PVC Casing —   Sch. 40 PVC Cas		#10/20 Sand #10/20 Sand	6 12 18 18 24 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0	0.0.0.0.0.0.	silty SAND: olive gray, moist; fine—to medium—grained sand; gravel up to 2—inch—diameter; trace of coarse—grained sand.  Same: at 15 feet, strong hydrocarbon odor.  Same: at 20 feet, very dense.  SAND: olive gray, moist; fine—grained sand; trace of coarse—grained sand.
		<u> </u>	<u> </u>		1 1 1 1 1			Baring terminated at 37 feet.

PROJECT NAME  WELL IDENTIFICATION NO. Dual completion  DRILLIAN METHOD. Halaun stern  DRILLIAN METHOD. Halaun stern  DRILLIAN METHOD. Halaun stern  DRILLIAN METHOD. Halaun stern  SIGNATURE  CONSULTING FIRM. Allyfo  REPRESENTATIVE: Bruce Aomer  Dual Screen 35-37 1'Mac  Ballit  Screen 5-35 2'Mac  Screen 5-35 2'Mac  Screen 5-35 2'Mac  Screen 5-35 2'Mac  Screen 5-37 1'Mac  Ballit  Dual Screen 35-37 1'Mac  Ballit  Dual Screen 35-37 1'Mac  Ballit  Screen 5-37 1'Mac  Ballit  Ballit  Screen 5-37 1'Mac  Ballit  B					START CARD NO.	27446
DRILLING METHOD: Lation Sterm  DRILLER: Addert b. Bayers  FIRM: Cordett B. Westershon 2  SIGNATURE: Abstro  CONSULTING FIRM: Abstro  DUAL Steren 35-37 1 Pac  Bettern Drive Comparation  AS-BUILT  WELL DATA  WELL DATA  FORMATION DESCRIPTION  DUAL Steren 35-37 1 Pac  Bettern 35-37 1 P		· ·	COUNTY: _	King		
DRILLING METHOD: Leditory Storm  DRILLING METHOD: Moser's  FIRM: Acrolett Explanation >  SIGNATURE:  CONSULTING FIRM: Alvis to  REPRESENTATIVE: Bruce Lomer  DUAL Storm 35-37 1'PMC  Assellit  Assellit  DUAL Storm 35-37 1'PMC  Assellit  Assellit  DUAL Storm 35-37 1'PMC  Assellit  Assellit  DUAL Comment first bruce 34-34-37  O) E, 7.0 6 britering 34-0-34-57  Comment first broad 13-3-4  Screen 5-25 2'PMC  Assellit  DUAL Comment Method for 1-4  To all 35-1  DUAL Comment Method for 1-4  DUAL Comment Method for	WELL IDENTIFICATION NO. Dual (	omeletion F. G. D. E	LOCATION:_	1414 :	Sec Twn	_ R
SIGNATURE:  SIGNATURE:  SIGNATURE:  SIGNATURE:  SIGNATURE:  STATE AND SURFACE ELEVATION:  REPRESENTATIVE:  SPUIC NOME:  DUAL Screen 35-37 1 ppc  Sation Solid 0-37 1 ppc  Soli	DRILLING METHOD: 140110W SF	<u>em</u>	STREET ADD	PRESS OF WELL:	2421 14811	PAUCNE
SIGNATURE:  CONSULTING FIRM.  Alisto  REPRESENTATIVE:  STUCE COMET  WELL DATA  FORMATION DESCRIPTION  Ballon  Solid 0-35 1"PDL  Alife' '090 Seed 34537  DESCRIPTION  Alife' Condition of solid 25-34  Secret 5-25 2"PDL  Solid 0-5 1"PDL  Solid 0-5 1"PDL  Solid 0-7	• • • • • • • • • • • • • • • • • • • •			<u> </u>	Bellview	<del></del>
CONSULTING FIRM.  AS-BUILT  AS-BUILT  WELL DATA  DEVELOPED:  DEVEL		n 5 ·	WATER LEVI	EL ELEVATION:	261	
ASBUILT  WELL DATA  WELL DATA  FORMATION DESCRIPTION  Dual Screen 35-37 1'Puc  Bottom Solid 0-35 1'Puc  A14,61' A60 384 345.57  0) E, 6, 6 Contents 340-3445  Secret 5-25 2'Puc  Secret 5-25 2'Puc  Secret 5-25 2'Puc  Secret 5-25 2'Puc  Secret 5-26 200 300 455-37  Compt Gent Grout 1-4  Top 21-34'  Screen 5-26 21  1010 Filter pack 45-31  Secret 7-23  1010 Filter pack 45-31  Ing C Secret 7-23  Ing C Secret 7-23  Ing C Secret 7-23  Ing C Secret 7-23  Ing C Secret 7-25  I			GROUND SU	IRFACE ELÈVATIO	N:	<del></del>
AS-BUILT  WELL DATA  Dual Screen 35-37 1 feet bottom solid 0-35 1 feet bottom solid 0-35 1 feet bottom solid 0-35 1 feet solid 0-37 1 feet bottom solid 0-35 1 feet solid 0-37	CONSULTING FIRM: Alisto		INSTALLED:	18-19	ruly.	
Dual Street 35-37 1'me bottom Solid 0-35 1"ppc A16,C1 'Alosand 34557 0) E, 150 Estaturs 34,0-34-5  (commt dent Goat 25-34 Serven 5-25 2"ppc dentchips 40-45 (commt dent dent 1-4 (commt dent 1-4 (commt dent dent 1-4 (commt dent 1-4	REPRESENTATIVE: <u>Bruce 40</u>	mer	DEVELOPED	):·	•	
Dual Street 35-37 1'me bottom Solid 0-35 1"ppc A16,C1 'Alosand 34557 0) E, 150 Estaturs 34,0-34-5  (commt dent Goat 25-34 Serven 5-25 2"ppc dentchips 40-45 (commt dent dent 1-4 (commt dent 1-4 (commt dent dent 1-4 (commt dent 1-4			•			
Asked 1400 and 34537  O)E, F, 6 Concerns 340.34537  Commit dent broat 35-34  Serven 5-25-21 vu  Solid 0-5 pi you  Solid	AS-BUILT			FORMA	ATION DESCRIPTIO	DN
FOR F CEMENT GROWN 27:5-34  SCREEN 7.5-27.5- 10/10 SONCY 7.0-27.5- Chips 6.5-7.0  CHARACTER FORM 1-7.0  FOR 6 CEMENT GROWN 16-34'  SCREEN 6-26 10/10 SONCY 155-26	30 Jan 34 Jan 35 T	Dual Screen 35-  bottom Solid 0-  Alb, CI 10/20 sprd 34.5  D, E, F, b Bentchirs 34.0  Cement bent bid  Screen 5-25  Solid 0-5  Id/20 sand 4.  Bentchips 4.  Cement bent bid  Refor Trenchir  Befor Trenchir  Befor Trenchir  Bentchips 4.  Cement bent bent on  Iop 21-34/  Bentchips 4.  Cement bent bent on  Iop 21-34/  Bentchips 4.  Cement bent bent on  Iop 21-34/  Screen 7-38  Ioldo sand 6.5-  Bentchip 10-0  Ioual Cement benton  Iop 25-  Bentchip 50-5  Rentchip 50-5  Rentchip 50-5  Rentchip 50-5  Cement bent orout  Top 25-  Top 55-  Tement bent orout  Top 25-  Top 55-  Tement bent orout  Top 25-  Tement bent orout  Top 35-  Tement bent orout  Top 35-  Tement bent orout  Top 25-  Tement bent orout  Top 35-  Tement bent orout  Top 25-  Tement bent orout  Top 35-  Tement bent orout  Tement bent orout  Tement bent orout  Tement bent orout  Top 35-  Tement bent orout  Teme	35 1"PUC 37			<del></del>
	! 	FOR F COMENT SENT FOR THE SCIENT TO SENTE TO SENTE TO SENTE TO SENTE TO SENTE TO SENTE TO SENTE TO SENTE TO SENTEN ET 26	6-0 1+ 27:5-34 7-5- 27:5- .0 7-0 6-34'			 

WELL IDENTIFICATION NO	skm .	COUNTY:				
REPRESENTATIVE: Bruce A	omer	INSTALLED:				
AS-BUILT	WELL DATA	·	FORMATION DESCRIPTION			
	35-37 Sch4010C 01 0-35 Sch4010C R 34.5-37 10/20 Sand 1-34.5 Bent chip 0-1 temp protect	iser Filler fack seal	Gravel sand silly collins 0-37			
	Belor Arench	·· )				
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PROJECT NAME:	tions	COUNTY:		
AS-BUILT	WELL DATA		FORMATION DESCRIPTION	
	36-38 sch 40 puc 01: 0-36 sch 40 puc 11: 35-5-34 10/20 sand 12: 35-35-7 Bent chip 0-35 cement bent co 0-1 temp protection Betor prench	iscy Filter pacif Grout	Gravel Sand Sill cosses 0-38	
	f" hore			
† 		; 		

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WELL IDENTIFICATION NO. SPACE 3, 41  LOCATION: 14 14 Sec Twn F  DRILLING METHOD: 10/10w s/cm STREET ADDRESS OF WELL: 3421 148 th au  DRILLER: Robert U. Rosers  FIRM: Grafek Explorations  WATER LEVEL ELEVATION: 26 th  SIGNATURE: GROUND SURFACE ELEVATION:  CONSULTING FIRM: A/15to INSTALLED: 17, 18, 27 11 y  REPRESENTATIVE: Basee Lomer DEVELOPED:  AS-BUILT WELL DATA FORMATION DESCRIPTION  35-37 sch 40 fuc 010 slot Gravel sand 5:1t coasies 0-  0-35 sch 40 fuc 010 slot Gravel sand 5:1t coasies 0-  34-34-5 dent chip	NE
DRILLER: Robert U. Rosers  FIRM: Grafel Explorations  SIGNATURE: GROUND SURFACE ELEVATION: J6'  CONSULTING FIRM: Alisto INSTALLED: 17, 18, 20 74 14  REPRESENTATIVE: Backer Lomer  AS-BUILT  WELL DATA  FORMATION DESCRIPTION  35-37 Sch 40 fuc. 010 Slot Gravel sand Silt collies 0- 0-35 Sch 40 rue ifizer  3415-37 10/20 Filterpack	
SIGNATURE:  SIGNATURE:  CONSULTING FIRM:  Alisto  REPRESENTATIVE:  Backer Longe  WATER LEVEL ELEVATION:  GROUND SURFACE ELEVATION:  INSTALLED:  17, 15, 20 74 14  DEVELOPED:  AS-BUILT  WELL DATA  FORMATION DESCRIPTION  35-37 sch 40 puc, 010 slot  0-35 sch 40 puc, 010 slot  3415-37 10/20 Filler pack	
SIGNATURE:  CONSULTING FIRM:  Alisho  REPRESENTATIVE:  Barrice Lomor  WELL DATA  FORMATION DESCRIPTION  35-37 Sch 40 PUC 010 Slot  0-35 Sch 40 PUC 010 Slot  3415-37 10/20 Filterpack	
REPRESENTATIVE:  AS-BUILT  WELL DATA  BOULD SIDE  O-35 SCH HO PUC 16/35 P  34/5-37 10/20 Filler pocic  INSTALLED: 17, 18, 20 74 Jy  DEVELOPED:  FORMATION DESCRIPTION  Gravel 5 and 5 ille collies of the pocicion of the poci	
AS-BUILT  WELL DATA  FORMATION DESCRIPTION  35-37 sch 40 puc 010 slot Gravel sand Silt collies 0- 0-35 sch 40 rue lifiser 3415-37 10/20 Filterpoole	<del></del> -
35-37 sch 40 puc 010 slot Grovel sand silt collies 0- 0-35 sch 40 rue lister 3415-37 10/20 Filterpack	<del></del> -
35-37 sch 40 puc 010 slot Gravel sand silt collies 0- 0-35 sch 40 rue i fiser 34,5-37 10/20 Filterpack	 ·37
0-35 SCH 40 ruc 16iser 3415-37 10/20 Filterpacic	· <i>3</i> 7
3415-37 10/20 Filterpack	
3415-37 10/20 Filterpock	
\	
1-34 cement Bent Grout	
0-1 reme profive cop select trending	
8" Bore	
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SCALE: 1" = PAGE OF	

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PROJECT NAME: B.P. Oil  WELL IDENTIFICATION NO. Searce  DRILLING METHOD: 1-016ws fe  DRILLER: Robert D. Rosers  FIRM: Uco feck Exploration  SIGNATURE: CONSULTING FIRM: Alisto  REPRESENTATIVE: Bruce Lo	en (	LOCATION:			
AS-BUILT	WELL DATA  Riser Screen 010 36-85  Filter pack 10/20 saml Coment bent brout 3  Bent chips 34.5-34  completed in 10' bore	4-6	Gravel Sord SITE (0881CS 38-0		
	Temp cap before Trenchia				
1		1.			
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