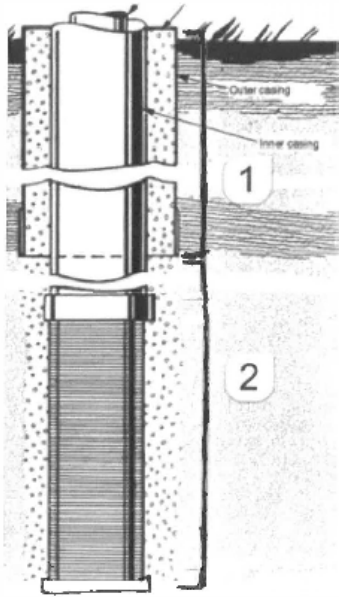
	Petroleum Restoration Program Guidance	Author: C. Bayliss, P.G.
	Deep Well	Updated: 6/14/2018

PURPOSE: To build up 2-inch diameter Deep Wells with Surface Casing in the SOW/SB-Well Installation and the STCM SPI via Hollow Stem Auger (HSA).



Section 1 (Surface Casing- Inner and Outer)

Via HSA –

- Surface casing will be installed on the first day of drilling using a 10-12 inch diameter HSA.
- The casing is installed and grouted (between the casing and edge of the borehole) to the surface.
- *Line Items 5-12, 5-13 or 5-14 will be used depending on depth of casing.*

Section 2 (Monitor Well (MW) below Surface Casing)

- Top of the well screen should start at least 2-5 feet below the bottom of the surface casing.
- Via HSA –
 - Installed after grout (Section 1) has had 24 hours to harden.
 - A 4-5 inch Mud Rotary drill is lowered through the casing and the final footage is drilled out from the bottom of the surface casing to the total depth of the MW.
 - A new borehole is NOT re-drilled through the Section 1 portion of the well install.
 - *Line Items 5-6, 5-7 or 5-8 and 6-2.a and 6-5 will be used depending on total depth of borehole.*

EXAMPLE:


- 65 ft deep well, 5 ft of screen interval, 55 ft of 6-in diameter surface casing

1. Include language in the SOW Workbook (Tab 1) in the appropriate Task for the installation of a deep well.

Task 1 Description: Mobilize to site and install a deep well with surface casing per the attached SB-Well Installation Table and Figure 3B.

2. Build up the Soil Boring Details and the Well Installation Details on the SB-Well Installation Table Tab. For ease of review, it is highly recommended that the Well Install Details be represented on the same Row as the Borehole Details for the well. You may be installing soil borings in another task unrelated to the DW conversion.


SOIL BORING (SB) and WELL INSTALLATION TABLE																	
SOIL BORING DETAILS					Screening/Split Spoon Intervals			WELL INSTALLATION DETAILS									
TASK #	Installation Method	Quantity	Depth (ft bis)	Total Boring Footage (ft)	Screening Depth Interval 1 & Spacing	Screening Depth Interval 2 & Spacing	Screening Depth Interval 3 & Spacing	Quantity	Well Type	Well Diameter (in)	Depth (ft bis)	Screen Interval (ft bis)	Total Well Footage (ft)	Surface Casing Diameter (in)	Surface Casing Depth (ft)	Total Casing Footage (ft)	Well Completion Type
1	HSA/MR	1	65	65				1	DW	2	65	60-65	65	6	55	55	8" MH
TOTALS				65									65			55	

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- Typically, OVA screening or Split Spoons are **not** needed when installing a well. Deep Well placement is usually needed only to delineate the vertical contaminant plume and extends into the water table.
3. When entering the applicable Pay Items into the STCM SPI Quantities, ensure that the correct Task # is used. (i.e. *Task 1 on the SOW and Table; Task 1 in STCM*) The following are common pay items associated with well installs:

PAY ITEM	DESCRIPTION	UNIT OF MEASURE	TOTAL QUANTITIES	[x] TASK 1 QUANT.
3.	MOBILIZATION			
3-1.	Mobilization, Light Duty Vehicle (car or 1/2 ton truck) - ≤ 100 miles each way	Per Round Trip	1	1
3-9.a.	Drill Rig and Support Vehicles Mobilization (hollow stem auger, mud rotary or sonic) - ≤ 100 miles each way	Per Round Trip	1	1
5.	DRILLING AND BORING			
5-7.	HSA or MR Boring, ≤ 6 inch diameter, 50 to 100 foot total depth	Per Foot	65	65
5-13.	HSA or MR Boring, > 10 to 14 inch diameter, 50 to 100 foot total depth	Per Foot	55	55
6.	WELL INSTALLATION			
6-2.a.	Well Installation - 2 inch diameter (vertical)	Per Foot	65	65
6-5.	Surface Casing - 6 inch diameter	Per Foot	55	55

- **3-1.** (or 3-2.) **Mobilization** is allowed once for field work associated with the well installation. If sampling within the same task, it is customary to give an additional mobilization for the sampling event.
 - This Pay Item is determined by the distance from the closest regional office (Main, Branch, Satellite, etc) to the site at the time of acceptance of the SOW; this may not necessarily be the office the ATC Project Manager is coming from.
 - It includes one (1) Light Duty Vehicle (car or ½ ton truck) for the ATC staff to get to the site.
 - It covers a time period of 7 consecutive days, as well as, field personnel/equipment operators, vehicle fuel/maintenance, tolls and drive time.
- **3-9.a.** (or 3-10.a.) **Drill Rig Mobilization** is allowed for the vehicles associated with the drilling (HSA, Mud Rotary and Sonic).
 - This covers the Rig (DPT, Drill or LDA), a Light Duty Vehicle, a Heavy Duty/Stakebed Truck **and** any Work Trailers utilized by the Subcontractor. Allowances for 3-1 thru 3-6 should not be immediately considered.
 - Additional vehicles will only be included based on a site-specific need.
 - It covers a time period of 7 consecutive days, as well as, field personnel/equipment operators, vehicle fuel/maintenance, tolls and drive time.

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- **5-7.** (or 5-6./5-8.) **HSA/MR Boring, ≤ 6-inch diameter** is allowed for the length of the borehole for the 2-inch diameter monitoring well.
 - In this example, the full borehole will be 65 feet.
 - Note: This footage should be accounted for in the Pay Item that corresponds with the total depth of the well.
 - *The depth of the well is 65 ft; this corresponds to the 50 to 100 foot “total depth range”.*
 - If you have more than one well that falls within the same “total depth range”, note the Pay Item ranges, then the cumulative footage would be accounted for in its respective Pay Item.
 - *Installing 2 wells to 65 ft depth/5 ft screen/55 ft casing? Put 130 feet in the 5-7. Pay Item.*
- **5-13.** (or 5-12./5-14.) **HSA/MR Boring, 10 to 14-inch diameter** is allowed for the casing length of the borehole for a 2-inch diameter well.
 - The additional width of the auger allows for the space needed for the grouting and inner and outer casing for the deep well.
 - If you have more than one well that falls within the same “total depth range”, note the Pay Item ranges, then the cumulative footage would be accounted for in its respective Pay Item.
 - *Installing 2 wells to 65 ft depth/5 ft screen/55 ft casing? Put 110 feet in the 5-13. Pay Item.*
- **6-2.a. Well Installation, 2-inch diameter** is allowed for normal, vertical shallow and deep wells. The total depth of the deep well is accounted for in this Pay Item.
 - In this example, that is 65 feet.
 - As for the other Pay Items, if installing more than one well (shallow, intermediate and/or deep), the total footage of all wells is represented here.
- **6-5. Surface Casing, 6-inch diameter** is allowed for the deep well surface casing.
 - All 6-inch diameter casing footage totals will be accounted for in this Pay Item. In this example, it will equal the amount in Pay Item **5-13.**

Do you or will you also need?

The following items should be considered for this activity.

- **1-4. Permit Fees.** No additional costs (time and effort) will be allowed for obtaining the permit; only the costs for the actual permit will be reimbursed. Some wells may be exempt from Water Management District permit fees.
- **1-5. Off-Site Property Access Agreement.** For wells installed in a FDOT Right-of-Way, the Permit serves as the off-site access agreement.
- **12-6. Transport and Disposal of Soil via Drum.** This pay item includes both the transportation and disposal of the drums to a registered disposal facility. Oversight, drums, time for completing the manifests are included as part of this Pay Item cost. Collection of waste classification samples and the lab costs are NOT.
- **9.A. Soil/Sediment Analysis.** Each disposal facility has different requirements. Confirm with that facility what classification is necessary. This could cover a number of Pay Items from this section.