Request for Additional Information

[DT Midstream Storage Site (R06-LA-0019)] - [Request #A-1]

Instructions: Populate the "Response" column with answers/responses to each comment/question below, then upload the completed responses to Field #3 in the "Information Requests" reporting module of the GSDT. If necessary, upload attachments or references in Field #4 of the module and/or update information within other GSDT modules. *To allow reviewers to quickly locate and review changes/updates, clearly identify the location within the application where edits for each response were made (e.g., Site Characterization, Section 2.7.4, p. 53, updated paragraph 2).*

Item #	Associated Regulation(s)	Comment/Question	Response
General			
1	40 CFR 146.82(a)(21)	**Comment:** Please provide copies of all references cited throughout the application. One folder/zip file containing references for all application sections/modules is acceptable.	
Narrative/Site Characterization			
2	40 CFR 146.82(a)(3)(iii)	**Background:** Site characterization data is incomplete for both the injection zone and the primary and secondary confining zones. Example 1: Specific values for porosity and permeability were never located for any of the confining zone layers. Example 2: "Table 1-8, Summary of injection and confining zone parameters at the proposed DTM-1 location" (Narrative p. 31) lists 12 parameters related to site characterization, yet values or comments are only included for 4 of the 12 parameters. **Comment:** Please ensure data are provided for all parameters described in the referenced regulation. If site-specific data are not available, provide values based on regional information along with an explanation/justification for why those values are considered appropriate in the absence of site-specific data.	
3	40 CFR 146.82(a)(3)(iii)	**Background:** On p. 10 of the Narrative, the narrative indicates that, "Much of the deep subsurface understanding for the DTMSS project is pulled from regional studies and available well logs in [redacted] Parish. Additionally, core analyses were purchased from the Shreveport Petroleum Data Association, Inc., and provide crucial subsurface information regarding the lithology and quality of the reservoir rock and caprock being evaluated for this project."	

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		Comment: If well logs, geologic cores, or other data were used to characterize the injection and/or confining zones, such data must be provided to EPA for review and verification. If other sources (e.g., literature or regional field studies) were used, such sources should be cited and copies provided to EPA.	
4	40 CFR 146.82(a)(3)(i), 40 CFR 146.82(a)(3)(ii), 40 CFR 146.82(a)(3)(vi), 40 CFR 146.82(a)(5)	**Background:** One structure map ("Figure 1-2, [redacted] structural map (top of the [redacted])," Narrative p. 13) and one cross-section ("Figure 1-5, Northwest to Southeast well section of [redacted] Parish, Louisiana," Narrative p. 16) are provided. However, no other structure, isopach, fault, base of USDW, or other maps or cross-sections are provided depicting the subsurface geology or hydrogeology surrounding the proposed project area. **Comment:** Please provide maps and cross-sections depicting all relevant aspects of the subsurface geology and hydrogeology in the project area as required in the referenced regulations. At a minimum, maps should be provided that depict formation tops or bases (structure maps) and formation thicknesses (isopach maps) of the injection zone and any confining layers; known fractures/faults and their extent; and the base of the lowermost USDW. Cross-sections should accurately depict depths and thicknesses of all formations; locations and depths of all known fractures and faults; and the base of the lowermost USDW. Ideally, a minimum of two cross-sections should be presented – one approximately parallel to strike and one approximately parallel to dip. If site-specific data are lacking, maps and cross-sections created based on regional well logs, core data, or other data are acceptable until site-specific data is acquired.	
5	40 CFR 146.82(a)(2)	**Background:** Figure 1-24 (Narrative p. 47) appears to be the most complete map of the project area, including the injection well and AOR. The map contains artificial penetrations (APs), but APs are not labeled with a name and/or unique identifying number (e.g., API or LDNR serial number), and the map is not of sufficient detail to allow for the location and differentiation of individual APs. Additionally, other features (e.g., water bodies, parish or other boundaries, major roads) are also not labeled, and no discussion is included indicating that searches for subsurface cleanup sites (e.g., Superfund/CERCLA, hazardous waste/RCRA, brownfields, leaking underground storage tanks) have been conducted and no sites located.	

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		Comment: Please provide a map of the project area that contains all elements as required in the referenced regulation, including all APs identified within the AOR. Ensure all required features are accurately labeled and the map is of sufficient detail and resolution to permit delineation of individual features (e.g., APs). Also update the narrative and map (if necessary) to include details of searches for subsurface cleanup sites and the results of those searches, including if no such sites were identified within the AOR..	
6	40 CFR 146.82(a)(2), 40 CFR 146.84(c)(2), 40 CFR 146.84(c)(3)	**Background:** Figure 1-24 (Narrative p. 47) contains a legend symbol and description for APs described as "Unable to Locate." At least 6 APs appear to be shown on the map with this symbol. **Comment:** All APs must be located, or justification must be provided describing all attempts to locate them. Such justification may include, but is not limited to, conducting field (e.g., drone, GPR, magnetometer, etc.) surveys or the provision of records definitively documenting that the APs do not exist (e.g., an AP was permitted but never drilled). If records cannot be provided and field surveys have not been conducted, such surveys will be required.	
7	40 CFR 146.82(a)(3)(iv)	**Background:** The application (Narrative p. 32) indicates that, "Site-specific geomechanical data for the DTMSS are absent and there is no known geomechanical analysis of the sequestration zone or the primary confining layer in or near [redacted] Parish. Acquisition of this data is planned and detailed in DTM's Pre-Operational Testing Program." Figure 1-15 (Narrative p. 32) shows the direction of maximum horizontal stress orientations in the region (Louisiana and parts of surrounding states), but no other information is provided. **Comment:** If site-specific data is not available, regional data should be used to describe the geomechanical and petrophysical properties of the confining zone. If regional data is also not available, then indicate this and describe search methods utilized, including what literature and/or other sources of information were consulted.	
8	40 CFR 146.82(a)(5)	**Background:** On p. 38 of the Narrative, the text states that, "The [redacted] aquifer is believed to be the deepest underground source of drinking water (USDW) where total dissolved solids are less than 10,000 mg/L." However, the next paragraph discusses shallower USDWs (the [redacted], [redacted], and [redacted] aquifers) present in the southern part of [redacted]	

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		Parish and states that, "…depth to the base of the aquifer (at 10,000 mg/l) ranges from 900 to 1,400 ft in the DTMSS." **Comment:** Please clarify which aquifer is considered the base of the lowermost USDW within the AOR, and please provide a more specific estimate of the depth to the base of the USDW within the AOR near the injection site.	
9	40 CFR 146.82(a)(6)	**Background:** The Narrative (p. 43) states that, "Site-specific geochemical data for DTMSS is not known to exist; however, acquisition of this data is planned and detailed in DTM's *Pre-Operational Testing Program*." It also states (p.44-5) that, "DTM decided to obtain site specific CO_2 compatibility data through a series of lab and field tests prior to implementing geochemical studies that could provide inconclusive evidence." **Comment:** If localized, site-specific geochemical data is not available, please provide regional data, or describe sources that were consulted prior to determining that no regional data were available. Also, please update the geochemistry section to describe the site-specific CO_2 compatibility testing that was conducted and provide the results and interpretation of that testing. If this testing has not been completed, please update the section to indicate this and provide details of the planned compatibility testing in the appropriate module/section.	
10	40 CFR 146.90(h)(2)	**Background:** Narrative Section 1.2.9 (p. 45) indicates that, "…DTM will collect surface air measurements throughout the LA CCS Project area at all injection well locations in order to obtain a baseline of surface air CO_2 concentrations prior to injection." However, no procedures or other description of these planned measurements were located in the Narrative or in any other sections, including the section for Surface and Near Surface Monitoring in the Testing and Monitoring Plan. **Comment:** If surface air monitoring is planned, either to obtain baseline results or as part of regular testing and monitoring, please update the appropriate sections of the application to include the monitoring plans and procedures.	
AOR/Corrective Action			
11	40 CFR 146.82(a)(4),	**Background:** Section 2.4.1 (p. 34) of the AOR and Corrective Action Plan indicates that the Louisiana Department of Natural Resources' (LDNR) SONRIS	

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	40 CFR 146.84(c)(2), 40 CFR 146.82(a)(21), 40 CFR 146.84(d)	database was utilized to identify oil/gas and water wells within the AOR. However, a detailed explanation of AP identification procedures and AP records searches is not provided, and there appears to be no indication that an exhaustive AP records search was conducted, including searches of LDNR's microfiche library, other commercial maps, scout tickets, etc. Since LDNR has confirmed to EPA that well records exist outside of SONRIS, including a comprehensive library of microfilm/microfiche records kept at LDNR's offices, well records compiled solely from SONRIS are considered incomplete and do not satisfy 40 CFR 146.84(c)(2) and 40 CFR 146.84(d). EPA's Underground Injection Control (UIC) Program Class VI Well Area of Review Evaluation and Corrective Action Guidance document (EPA 816-R-13-005, May 2013), which supports 40 CFR 146.84, discusses two critical narratives that detail the technical efforts for: (1) identifying all APs in the area of review, and (2) the AP records data collection process associated with the AOR APs to assess their conditions concerning the impact of the proposed Class VI action. The procedures and protocols for this are discussed in Chapter 4 of the guidance document found at https://www.epa.gov/sites/default/files/201507/documents/epa816r13005.pdf. **Comment:** Please provide information for items (1) and (2) above detailing how the AOR AP locations were found and how each AP's records were compiled. The updated information should include detailed steps taken to ensure the identification of all APs within the AOR, and it should include a detailed description of steps taken to conduct an exhaustive records search, including searches beyond LDNR's online SONRIS database.	
12	40 CFR 146.82(a)(4), 40 CFR 146.84(c)(2), 40 CFR 146.82(a)(21)	**Background:** A table of APs is submitted separately as part of the Class VI application (LACCS_Tabulation of Wells in AOR.xlsx). The table contains information about total depth (TD), location, AP type, status, etc. as well as links to LDNR SONRIS database records for oil/gas wells. No links or hardcopy (pdf) records were provided for water wells, and no hardcopy (pdf) records were provided for oil and gas wells. To properly evaluate the AOR and Corrective Action plans, EPA must independently assess each AP, including whether it penetrates the injection and/or confining zone(s) as well as the well construction details of all wells that do penetrate the injection and/or confining zone(s). To do so, the application must contain hardcopy (pdf) records for all APs located within the AOR regardless of the source of the	

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		records (SONRIS, microfiche, scout tickets, etc.). Links to records within SONRIS are not acceptable and are not considered complete. **Comment:** Please provide hardcopy (pdf) records for all APs within the AOR regardless of TD, status, or other circumstances. Additionally, please provide records for each AP in an individual pdf file (i.e., one AP's records per pdf) rather than combining records for multiple or all APs into one pdf file.	
13	40 CFR 146.82(a)(4), 40 CFR 146.84(c)(2)	**Background:** The table of APs provided (LACCS_Tabulation of Wells in AOR.xlsx) does not include well construction information needed to evaluate wells penetrating the injection and/or confining zone(s). Such information includes, but is not limited to, casing and hole sizes, plug lengths, plug depth ranges, and amount of casing/tubing pulled. **Comment:** Please update well tables or create a new table to include well construction information for all wells penetrating the injection and/or confining zone(s).	
14	40 CFR 146.82(a)(4), 40 CFR 146.84(c)(2)	**Background:** The table of APs provided (LACCS_Tabulation of Wells in AOR.xlsx) includes 12 oil/gas and 3 water wells for which a TD of "0" is listed. No explanation for this depth is provided. **Comment:** Please update wells with listed TDs of "0" to the actual TD for the given well, or explain why no TD is available (e.g., the well was permitted but never drilled). Records should be included to verify any wells with a TD of "0" or for which no depth is available (see Item #11).	
Pre-Operational Testing			
15	40 CFR 146.82(a)(8), 40 CFR 146.87	**Background:** The Pre-Operational Testing plan provides an extensive list (p. 6-7) and table (Table 5-4 p. 7-9) of wireline logging tools that DTM *could* use, but no details are provided on which tools DTM actually plans to use. **Comment:** Please provide a narrative describing the wireline logging tools DTM plans to use during pre-operational testing and logging of the injection well.	