US EPA ARCHIVE DOCUMENT

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
http://sero.nmfs.noaa.gov

JAN -7 2014

F/SER31:AB
SER-2013-12243

Ms. Wren Stenger
Director, Multimedia Planning and Permitting Division
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Ref.: Issuance of Green House Gas Prevention of Significant Deterioration (PSD) Permit for the Occidental Chemical Corporation (OxyChem) - Ingleside Chemical Plant Natural Gas Liquids Fractionation Facility, San Patricio County, Texas

Dear Ms. Stenger:

This responds to your letter dated September 6, 2013, requesting National Marine Fisheries Service (NMFS) concurrence with your determinations pursuant to Section 7 of the Endangered Species Act (ESA). The United States Environmental Protection Agency (EPA) intends to issue a PSD permit to OxyChem for the construction of a new natural gas liquids fractionation facility. You determined the action may affect, but is not likely to adversely affect, smalltooth sawfish and green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles. NMFS's determination regarding the effects of the proposed action is based on the description of the action in this informal consultation. Any changes to the proposed action may negate the findings of the present consultation and may require reinitiation of consultation with NMFS.

OxyChem proposes to construct and operate a fractionation facility at an existing industrial complex located west of Ingleside, San Patricio County, Texas. The project is centered around the geographic coordinates of 27.886667°N, 97.235278°W (North American Datum 1983) and abuts the La Quinta Channel and Corpus Christi Bay. The project is located approximately 12 miles west of Aransas Pass (Figure 1). The facility will ultimately fractionate natural gas liquids (NGL) into commercial grade ethane, propane, butane, and natural gasoline. These products will then be temporarily stored on property or transported to market via several methods including pipeline, rail, truck, and barge. The proposed action involves three major components:

- **Fractionation facility:** A new NGL fractionation facility with an associated control building, an electrical switch yard, pipe racks, an on-site ethane connection to a pipeline, two thermal oxidizers, an emergency enclosed ground flare, above-ground non-refrigerated product storage facilities, above-ground contaminated water and water stripping tanks, above-ground chemical tanks, rail siding/rail car loading inclusive of one culverted crossing of a non-jurisdictional man-made drainage ditch, a truck loading facility, and temporary construction staging areas.

US EPA ARCHIVE DOCUMENT

- **Barge dock modifications:** Modifications to existing barge docks located along the shoreline of the adjacent OxyChem chemical manufacturing facility. Modifications consist of the installation of two 60-inch steel monopiles, the retrofitting of the existing above-water docks with new fuel loading arms, and the enlargement of existing pipe racks on the docks to transport the fractionated products to barges.
- **Pipeline facilities:** Four new pipelines, including one NGL feedstock and three fractionated hydrocarbon product send-out pipelines, in an approximately 18.5-mile-long 100-foot-wide (50-foot-wide permanent and 50-foot-wide temporary construction) right-of-way (ROW), referred to as the San Patricio Pipeline (SPP) Corridor.

Figure 1. Google Earth© image showing the approximate location of the OxyChem facility (yellow) in relation to the surrounding environment.

While nearly all activities associated with the construction and operation of the facility will occur on land, there are two aspects associated with the adjacent waterway. The operation of the facility will result in the additional discharge of treated wastewater from an existing and previously permitted (by a National Pollutant Discharge Elimination Permit) outfall. OxyChem will cool and treat all process wastewater using the existing wastewater treatment system prior to discharge from the outfall in the La Quinta Channel. The total discharge from the outfall will be well below levels authorized by the existing permit. OxyChem will also install two monopiles adjacent to the existing barge docks. The addition of the monopiles is the only in-water work associated with the construction of this facility. OxyChem will use a barge-mounted crane to drive the piles into place. OxyChem expects that 5,000-10,000 strikes may be necessary to install each pile, but hopes to have each pile installed in a single day (two days total). Once in place, the steel piles will be filled with concrete.

US EPA ARCHIVE DOCUMENT

To reduce any potential harmful effects to protected species, OxyChem has agreed to several mitigation measures:

- OxyChem will comply with NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions.*
- OxyChem will use turbidity curtains during pile installation.
- OxyChem has agreed to ramp-up[1] procedures to give any protected species in the area adequate time to leave on their own volition prior to pile installation.
- OxyChem will use a pile sleeve with an interior bubble curtain around the monopiles during installation.

Five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead) can be found in or near the action area, and may be affected by the proposed project. Although the EPA also identified smalltooth sawfish as a species likely to be in the action area, data indicate this species is extremely rare to Texas and is generally restricted to the peninsula of Florida.[2] Therefore, the effects of the proposed action on smalltooth sawfish are not considered further in this consultation. There is no critical habitat in or near the action area.

The construction and operation of the NGL fractionation facility may affect sea turtles through barge traffic, pile driving, and accidental spills. While the operation of the facility will also increase the amount of treated discharge to La Quinta Channel through an existing outfall, NMFS does not believe that the increase will have any effects on sea turtles because the total discharge will still be well below levels authorized by the existing permit, which is considered to be protective of marine organisms. Products from the facility will be barged to markets, resulting in an increase of barge traffic in the action area by an estimated 88 additional barge trips per year. Sea turtles can be struck by barges causing injury or death. NMFS believes this effect is discountable because barges will operate at slow speeds (6-10 knots), thus allowing a mobile species such as sea turtles adequate time to avoid collisions. High intensity sound waves generated during monopile installation have the potential to affect sea turtles through behavioral changes or through physical injury. The sound propagation analysis (see Appendix A), indicates that the noise from pile installation will only reach a level loud enough to cause injurious effects at distances up to approximately 820 ft (250 m). Because the La Quinta Channel is approximately 1,800 ft wide, a "sound-free corridor" (without noise loud enough to cause behavioral or injurious effects) along the opposite bank will remain available for species passage during the installation process. NMFS believes that due to the short duration of pile driving (approximately 2 days) and the mitigation measures to reduce noise (pile sleeve and bubble curtain) any effects of noise from pile installation will be insignificant.

Accidental spills or discharges of NGL, products, or operational chemicals could affect protected sea turtles if they reach the waters of the La Quinta Channel. While we do not fully know the extent to which these chemicals could affect sea turtles, we believe they could affect the sea turtles directly through exposure and indirectly through food web impacts. However, OxyChem

[1] Dry-firing of the pile-driving hammer by raising and dropping the hammer with no compression of the pistons and slowly increasing the power of the hammer over a period of 30 minutes prior to actual pile driving activities.

[2] NMFS. 2010. Smalltooth Sawfish 5-Year Review: Summary and Evaluation. http://www.nmfs.noaa.gov/pr/pdfs/species/smalltoothsawfish_5yearreview.pdf

US EPA ARCHIVE DOCUMENT

will have safety measures built into their facility design to greatly reduce the probability of any chemicals reaching the adjacent waters. OxyChem will provide the following: (1) concrete containment around the NGL fractionation facility area to direct any spill material to the contaminated water storage tank for treatment; (2) containment areas to hold 110 percent of a single tank volume around each product and waste storage tank; (3) a containment area around the product loading areas (rail, truck, and barge) to ensure drip containment; and (4) shut-off valves/switches at loading areas to immediately shutdown flow to avoid a spill. Given these measures and the existing wastewater treatment facility, NMFS believes an accidental spill of chemicals is highly unlikely to reach the adjacent waters and therefore any effects are discountable.

This concludes your consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action.

We have enclosed additional information for your review including NMFS's Public Consultation Tracking System to allow you to track the status of ESA consultations. If you have any questions, please contact Adam Brame, Consultation Biologist, at (727) 209-5958 or by e-mail at Adam.Brame@noaa.gov. Thank you for your continued cooperation in the conservation of listed species.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

Enc.: 1. *PCTS Access and Additional Considerations for ESA Section 7 Consultations* (Revised June 11, 2013)
2. *Sea Turtle and Smalltooth Sawfish Construction Conditions* (Revised: March 23, 2006)

File: 1514-22.K

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Appendix A: Noise Thresholds and Calculations

When source sound levels are greater than behavioral or injurious thresholds, there are impacts to organisms. Through some calculations we can determine the distance necessary for intense sound to attenuate below threshold levels. The table below provides underwater injury and behavioral thresholds for various sizes of fish based on the most currently accepted criteria for fish.[3]

Threshold noise levels for sea turtles.

Impact	Underwater threshold
Injury*	206 dB peak
	187 dB (SEL)
Behavior	160 dB (RMS)

*Injury thresholds for sea turtles are unknown, so we rely on those determined for fish.

Definitions:

Peak Pressure: Peak pressure is the maximum positive pressure between zero and the greatest pressure of signals in units of dB re 1 μPa_{peak} or $_{0\text{-peak}}$. Peak levels are generally higher than RMS levels and often used to determine injury ranges from pressure.

Sound Exposure Level (SEL): SEL is the time cumulative sum of squares pressure divided by the duration of the sound (usually 1 second for a pile driving strike). SEL levels have units of dB re 1 $\mu Pa^2 \cdot s$ and can be used to calculate the cumulative risk to multiple exposures over time from repeated pile driving strikes.

Root Mean Square (RMS): The square root of the average of the square of the pressure of the sound signal over a given duration in units of dB re 1 μPa_{rms}. RMS is often used to determine behavioral responses to audible sounds.

Since the expected source level for driving 60-in steel piles exceeds the reported thresholds, we calculated the distances to which impacts would occur (see below) using a "15 log R" equation.
The source sound level we are using is referenced from a compendium of pile driving data.[4] To determine the source level needed for our calculations we took the following steps:

- Conducted a back calculation to determine the sound level at the source (Referenced sound level was at 10 meters (m) from the source.)
- Estimated the noise attenuation resulting from the use of the pile sleeve and bubble curtain to be 15 dB
- Assumed that 5,000 strikes per day would be the maximum possible in any given 8-hour period (The applicant gave us a range of 5,000-10,000 strikes to install each pile.)
- Converted SEL_{SS} to SEL_{CUM}, to account for the exposure level over the course of an 8-hour day
    - $SEL_{CUM} = SEL_{SS} + 10 \log(\text{total pile strike per day})$

[3] Federal Highway Administration. 2012. *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish.* Final. February. (ICF 645.10.) Prepared by ICF International, Seattle, WA.

[4] Illinworth and Rodkin. 2007. Compendium of Pile Driving Sound Data. Report for the California Department of Transportation. 129 pp.

Steps to determine the source level of a 60-inch concrete pile.

Reference Unit (dB)	Reference Level	Sound loss over 10 meters	Source Level used for analysis	Source level w/ mitigation
Peak pressure	210 dB	15 dB	225 dB	210 dB
RMS	195 dB	15 dB	210 dB	195 dB
SEL_{SS}	186 dB	15 dB	201 dB	186 dB
SEL_{CUM}			238 dB*	223 dB*

*based on 5,000 strikes per day

To calculate the distance to which injurious noise could spread from the source, NMFS subtracted the threshold value (187 dB) from the source level (SEL_{CUM} with mitigation – 223 dB). We then used the resulting value in our in-house spreading calculator to determine the distance needed for sound to reduce to that value (36 dB). As seen in the table below, at a range of 250 m (820 ft), the 15 log R spreading loss is 35.97 dB.

Spherical (20 logR) and Cylindrical (10 and 15 logR) Spreading Loss

Instructions: Input range from source to obtain spherical and cylindrical spreading loss (- dB)

Range (m)	log (R)	20 logR Spherical Spreading Loss (- dB)	10 log R Cylindrical Spreading Loss (- dB)	15 log R Cylindrical Spreading Loss (- dB)
1	0	0	0	0
2	0.301029996	6.020599913	3.010299957	4.515449935
4	0.602059991	12.04119983	6.020599913	9.03089987
8	0.903089987	18.06179974	9.03089987	13.5463498
10	1	20	10	15
25	1.397940009	27.95880017	13.97940009	20.96910013
50	1.698970004	33.97940009	16.98970004	25.48455007
250	2.397940009	47.95880017	23.97940009	35.96910013
1000	3	60	30	45
2000	3.301029996	66.02059991	33.01029996	49.51544993
10000	4	80	40	60
100000	5	100	50	75
500000	5.698970004	113.9794001	56.98970004	85.48455007
1000000	6	120	60	90

To calculate the distance to which behavioral effects could extend from the source, NMFS subtracted the threshold value (160 dB) from the source level (RMS with mitigation – 195 dB). We then used the resulting value (35 dB) in our in-house spreading calculator to determine the distance needed for sound to attenuate to that level (35 dB). As seen in the table below, based on the 15 log R model, 34.99 dB of loss will occur over a distance of 215 m (705 ft).

Spherical (20 logR) and Cylindrical (10 and 15 logR) Spreading Loss

Instructions: Input range from source to obtain spherical and cylindrical spreading loss (- dB)

Range (m)	log (R)	20 logR Spherical Spreading Loss (- dB)	10 log R Cylindrical Spreading Loss (- dB)	15 log R Cylindrical Spreading Loss (- dB)
1	0	0	0	0
2	0.301029996	6.020599913	3.010299957	4.515449935
4	0.602059991	12.04119983	6.020599913	9.03089987
8	0.903089987	18.06179974	9.03089987	13.5463498
10	1	20	10	15
25	1.397940009	27.95880017	13.97940009	20.96910013
50	1.698970004	33.97940009	16.98970004	25.48455007
215	2.33243846	46.6487692	23.3243846	34.9865769
1000	3	60	30	45
5000	3.698970004	73.97940009	36.98970004	55.48455007
10000	4	80	40	60
100000	5	100	50	75
500000	5.698970004	113.9794001	56.98970004	85.48455007
1000000	6	120	60	90

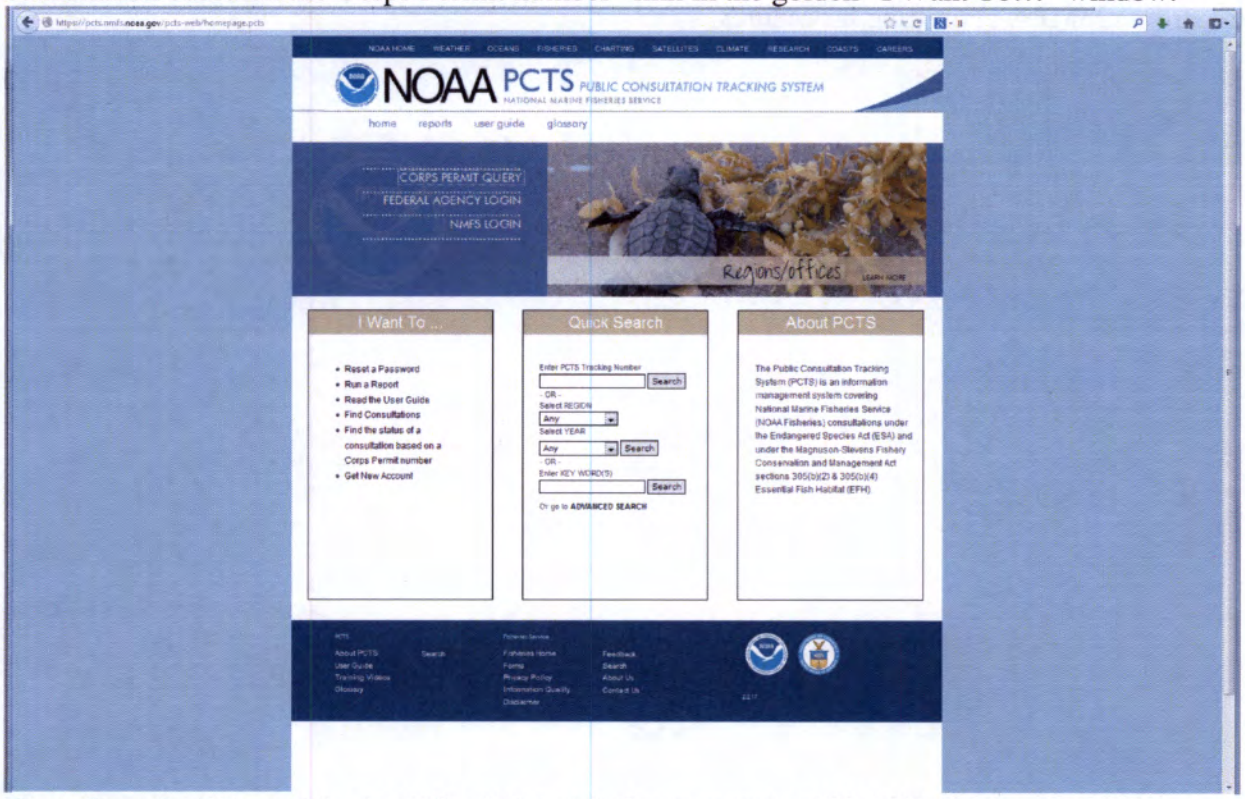
US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

PCTS Access and Additional Considerations for ESA Section 7 Consultations
(Revised 6-11-2013)

Public Consultation Tracking System (PCTS) Guidance: PCTS is a Web-based query system at **https://pcts.nmfs.noaa.gov/** that allows all federal agencies (e.g., U.S. Army Corps of Engineers - USACE), project managers, permit applicants, consultants, and the general public to find the current status of NMFS's Endangered Species Act (ESA) and Essential Fish Habitat (EFH) consultations which are being conducted (or have been completed) pursuant to ESA Section 7 and the Magnuson-Stevens Fishery Conservation and Management Act's (MSA) Sections 305(b)2 and 305(b)(4). Basic information including access to documents is available to all.

The PCTS Home Page is shown below. For USACE-permitted projects, the easiest and quickest way to look up a project's status, or review completed ESA/EFH consultations, is to click on either the "Corps Permit Query" link (top left); or, below it, click the "Find the status of a consultation based on the Corps Permit number" link in the golden "I Want To…" window.



Then, from the "Corps District Office" list pick the appropriate USACE district. In the "Corps Permit #" box, type in the 9-digit USACE permit number identifier, with no hyphens or letters. Simply enter the year and the permit number, joined together, using preceding zeros if necessary after the year to obtain the necessary 9-digit (no more, no less) number. For example, the USACE Jacksonville District's issued permit number SAJ-2013-0235 (LP-CMW) must be typed in as 201300235 for PCTS to run a proper search and provide complete and accurate results. For querying permit applications submitted for ESA/EFH consultation by other USACE districts, the procedure is the same. For example, an inquiry on Mobile District's permit MVN201301412 is entered as 201301412 after selecting the Mobile District from the "Corps District Office" list. PCTS questions should be directed to Eric Hawk at Eric.Hawk@noaa.gov or (727) 551-5773.

EFH Recommendations: In addition to its protected species/critical habitat consultation requirements with NMFS' Protected Resources Division pursuant to Section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NMFS' Habitat Conservation Division (HCD) pursuant to the MSA requirements for EFH consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NMFS letterhead from HCD regarding their concerns and/or finalizing EFH consultation.

Marine Mammal Protection Act (MMPA) Recommendations: The ESA Section 7 process does not authorize incidental takes of listed or non-listed marine mammals. If such takes may occur an incidental take authorization under MMPA Section 101 (a)(5) is necessary. Please contact NMFS' Permits, Conservation, and Education Division at (301) 713-2322 for more information regarding MMPA permitting procedures.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.

b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.

c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.

e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.

f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.

g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006