Harbor Safety Committee
of the San Francisco Bay Region

Mandated by the California Oil Spill Prevention and Response Act of 1990

Harbor Safety Committee of the San Francisco Bay Region
October 12, 2023
Port of San Francisco, Pier 1, Prologis Conference Room
The Embarcadero, San Francisco, California

Scott Humphrey (M), Marine Exchange of the San Francisco Bay Region (Marine Exchange), Chair of the Harbor Safety Committee (HSC); called the meeting to order at 10:04.

Marcus Freeling (A), Marine Exchange, confirmed the presence of a quorum of the HSC.

Committee members (M) and alternates (A) in attendance with a vote: **Cody Aichele-Rothman** (A) Bay Conservation and Development Commission; **Ben Eichenberg** (M), San Francisco Baykeeper; **Patrick Forrester** (A), Port of San Francisco; **Jim Haussener** (A), CMANC; **Capt. Tony Heeter** (M), Blue and Gold Fleet; **Capt. Taylor Lam** (M), United States Coast Guard; **Christopher Lee** (M), Matson Navigation; **Richard Ogg** (M), F/V Karen Jeanne; **Jeff Qualman** (M), Norvic Shipping; **Capt. Paul Ruff** (M), San Francisco Bar Pilots; **John Schneider** (M), Marathon Petroleum; **Randy Scott** (M), Port of Benicia; **LTC Timothy Shebesta** (M), US Army Corps of Engineers; **Justin Taschek** (A), Port of Oakland; **Jeff Vine** (M), Port of Stockton.

The meetings are always open to the public.

Approval of the Minutes-

A motion to accept the minutes of the September 14, 2023, meeting was made and seconded. The minutes were approved without dissent.

Comments by the Chair- Scott Humphrey

Welcomed the committee members and audience.

Coast Guard Report- Capt. Taylor Lam

- The Bay Ferry VI maritime security exercise was held successfully. Several active threat scenarios were conducted to help prepare first responders.
- Fleet Week, a SEAR rated event, was held successfully with increased public attendance throughout the week. No major issues occurred, and planning is underway for next year.
- The Asia-Pacific Economic Cooperation (APEC) Summit will be held in San Francisco on November 11-17. Many heads of state are expected to attend.

- New Year's Eve fireworks is a SEAR event and planning is ongoing.
- Increased criminal activity in Oakland Harbor is being addressed. The USCG is collaborating with local police on the issue.
- LT William Harris read from the September- 2023 Prevention/Response Report (attached).

Army Corps of Engineers Report- LTC Timothy Shebesta

- Introduced himself to the committee as the new USACE San Francisco District Commander.
- Jessicca Vargas, USACE, read from the US Army Corps of Engineers, San Francisco District Report (attached). The FY23 dredge construction phase is ongoing. The contract for Redwood City Harbor dredging is being bid on. Richmond Inner Harbor dredging has been paused until December. MARAD Suisun Fleet dredging is underway. The FY24 dredge program will be released by the end of the year. Debris removal tonnage was below average for September. The draft IFR/EA for the Oakland Harbor Turning Basins Widening Study was released and input is welcome. The Chief's Report for the study is expected in May 2024. The Regional Dredge Material Management Plan is ongoing. Surveys are posted and a channel condition report is included.
- Stas Margaronis asked about the current depth of Redwood City Harbor. Jessica Vargas advised that the outside quarters of the channel are at a depth of 20.5 feet and 18.2 feet. The inside quarters are at a depth of 23.9 feet and 25.6 feet. The authorized depth of the channel is 30 feet.

Clearinghouse Report- Marcus Freeling (report attached)

OSPR Report- Mike Zamora

- Introduced Jon Victoria, new OSPR Chief of Prevention, to the committee.
- A new HSC membership vacancy announcement will be distributed. HSC Vice-Chair and other committee positions are available. Applications are welcome. Contact: michael.zamora@wildlife.ca.gov

NOAA Report- (report attached)

- All raster charts are scheduled for cancelation by the end of 2024.
- Brian Garcia, NWS, advised that we are transitioning from a fall to winter weather pattern. Increased ocean swells are expected next week. Tidal swings with negative low tides are also

predicted. An El Nino Advisory has been issued due to increased tropical sea surface temperatures. El Nino is associated with larger storms, but the effects are variable.

State Lands Commission Report- No Report

PORTS Report- Marcus Freeling

- The Southampton Shoal LB6, Oakland Inner Harbor LB4, and Oakland Outer Harbor LB3 buoy-mounted current meters were repaired, upgraded, and redeployed in July. There are stability issues with the LB6 meter and a new DCP will be installed to fix the problem. The LB3 meter has a bad battery which will be replaced. Visibility sensor issues have been repaired and the stations are back online. An outage was recently reported at the Richmond Point Potrero weather station. Routine PORTS maintenance is ongoing.
- PORTS data is publicly available through NOAA's Tides and Currents website: https://tidesandcurrents.noaa.gov/ports/index.html?port=sf
- Scott Humphrey advised that the Marine Exchange owns and maintains most of the SF PORTS network of oceanographic and meteorological sensors around the bay. OSPR provides funding for maintenance of the system and NOAA disseminates the data. There are PORTS networks in regions throughout the country, but they are operated, maintained, and funded independently.

Report on Hydrogen Fuel- Mallika Mukundan, Chevron

- Mallika Mukundan, Chevron New Energies, gave a presentation to the committee on hydrogen fuel (slides attached). Clean energy with reduced carbon emissions is in demand and partnerships are a priority. Chevron is committed to bringing new sources of cleaner energy to the market including renewable natural gas/diesel, hydrogen, and advanced geothermal. Carbon capture and storage technology is also a priority. A mix of solutions will be needed to meet clean energy goals with hydrogen predicted to be about six percent of the total by 2050. Hydrogen production will need to increase significantly to meet demand. The trucking and maritime industries are particularly suited to adopting hydrogen energy. Hydrogen can be categorized based on how it is produced. Hydrogen production requires energy input. Conventional grey hydrogen is made from natural gas. Blue hydrogen is made from natural gas, but the carbon is captured during production. Green hydrogen is made from renewable energy. Pink hydrogen is made from nuclear energy. All types of hydrogen are being researched and assessed for market viability. Port areas are susceptible to air pollution and are good candidates for adoption of hydrogen fuel. Industry partnerships are encouraged.

- Scott Humprey asked about the concept of hydrogen as stored energy. Mallika Mukundan advised that renewable energy can be used to produce hydrogen for later use. In this case, hydrogen acts as storage for renewable energy. Justin Taschek asked about potential weight and safety issues with the use of hydrogen fuel for trucks and port vehicles. Mallika Mukundan advised that hydrogen can be transported as a high-pressure gas or by liquification. Hydrogen is highly flammable and safety education is key. Ben Eichenberg advised that it is important to differentiate between environmentally friendly green hydrogen and conventional grey hydrogen. European studies show that responsibly produced hydrogen requirements do not reduce potential future supplies. NRDC recently published an analysis encouraging Chevron to support the Three Pillars of regulatory guidance to ensure hydrogen production does not end up doing more harm than good. Link: https://www.nrdc.org/bio/rachel-fakhry/new-analysis-3-pillars-will-support-large-hydrogen-deployment. The study shows how the Three Pillars of new clean supply, hourly matching, and deliverability will support substantial deployment of clean hydrogen in this decade. Mallika Mukundan advised that reducing carbon emissions is a primary goal and green hydrogen is being researched in addition to other types. Stas Margaronis, Propeller Club, asked about the use of methanol as fuel. Mallika Mukundan advised that methanol is not low carbon but is being considered as a fuel for ships as it is renewable and easy to transport. Capt. Heeter advised of a hydrogen fuel cell powered ferry docked at Pier 9 and asked about industry safety guidance. Capt. Lam advised of training that was given on hydrogen fuel cell technology. Information will be provided.

Work Group Reports-

Tug Work Group- Nothing to report.

Navigation Work Group- Capt. Paul Ruff: The Echo Buoy recently sank and will be replaced. A virtual buoy is being used to mark the position. Negative tides are predicted and under keel clearance is a concern. Some vessel transits might have to be delayed until higher tide which impacts scheduling. The Navigation Work Group is partnering with the Marine Mammal Work Group on VSR issues. A Work Group meeting will be scheduled.

Ferry Operations Work Group- Capt. Tony Heeter: Fleet Week was held successfully with an increased number of people attending this year. Brandon Chapman, Golden Gate Bridge Highway & Transportation District, advised that the Bay Ferry VI maritime security exercise was conducted over four days in September. Preventative Rad/Nuc detection, active threat, and VMAP training were performed successfully. A final report will be released, and additional training is being provided for law enforcement. Capt. Heeter advised that additional VMAP training is planned.

Dredge Issues Work Group- Jim Haussener: Pinole Shoal Channel was not dredged to full authorized depth and the next scheduled dredging is not until summer 2025. Draft restrictions are expected to increase over time. Redwood City Harbor dredging is in the bidding process. The thirty-foot channel is now restricted to twenty-one feet. Dredging the Stockton Channel to full depth is critical.

PORTS Work Group- Justin Taschek: Nothing to report.

Prevention through People Work Group- Jim Haussener: Nothing to report.

Marine Mammal Work Group- Kathi George (A), The Marine Mammal Center: There have been recent humpback whale sightings in the bay. The Whale Safe buoy separated from its mooring and is adrift, but efforts are being made to secure it. The Work Group met last month to address issues related to the San Francisco – Pacifica Exclusion Area. The next Work Group meeting will be held online on October 17th. A Work Group meeting is also scheduled on November 8th. Reducing risk to marine mammals and maintaining navigational safety are primary goals.

Public Comment-

- Stas Margaronis advised of a Storms, Flooding, and Sea Level Defense Conference to be held on November 8th at Scott's Seafood in Oakland. Presentations will be given by Scott Humphrey, USACE, Port of Oakland, and BCDC. Emergency preparation and information sharing will be discussed.
- Justin Taschek advised that public review of the draft EIR for the Oakland Harbor Turning Basins Widening Project is underway. Comments are welcome by November 17th and a public meeting will be held on October 25th. Information: www.oaklandseaport.com/turningbasins
- Cody Aichele-Rothman advised that BCDC is holding a November 2nd public hearing on the draft Seaport Plan. BCDC Draft Seaport Plan: https://www.bcdc.ca.gov/BPA/1-19/11-02-Draft-Seaport-Plan-September2023.pdf. BCDC Staff Report: https://www.bcdc.ca.gov/BPA/1-19/11-02-Draft-Preliminary-Staff-Recommendation.pdf

Old Business- None

New Business- None

Next Meeting-

1000-1200, November 9, 2023
Port of San Francisco, Pier 1, Bay Side Conference Room
The Embarcadero, San Francisco, California

Adjournment-

A motion to adjourn the meeting was made and seconded. The motion passed without dissent and the meeting adjourned at 11:50.

Respectfully submitted: Marine Exchange of the San Francisco Bay Region

SIGNIFICANT PORT SAFETY AND SECURITY CASES (SEPTEMBER 2023)

MARINE CASUALTIES

Loss of Steering (02SEP2023): A foreign flagged tank vessel experienced a loss of steering while attempting to depart Anchorage 9. The vessel's #2 steering pump was fully repaired. Class surveyor attended the vessel and witnessed satisfactory operation of the steering gear. Case closed.

Allision (06SEP2023): A U.S. flagged inspected towing vessel allided with a fixed Aid to Navigation while transiting the Suisun Bay channel. There was no reportable structural damage to the vessel, the is navigation aid completely destroyed. Case closed.

Crewmember Injury (13SEP2023): A crewmember of a U.S. flagged container vessel experienced an injury while onboard the vessel in the vicinity of Oakland, CA. The crewmember lacerated themself on accident while sharpening their personal knives. Member was taken to a nearby hospital and will require two weeks of recovery time. Case closed.

Loss of Steering (19SEP2023): A foreign flagged bulk carrier experienced a loss of steering while transiting into the Sector San Francisco COTP zone. The vessel reported alarms on their steering gear and with reduced maneuverability of the rudder. The vessel was issued a COTP Order and will require permanent repairs to be conducted within the San Francisco COTP zone. Case pends.

Equipment Failure (25SEP2023): A U.S. flagged container vessel experience an equipment failure while moored at Oakland, CA. The vessel master reported that a fracture was found in the fixed CO_2 system piping that protects cargo hold #2. The vessel has made permanent repairs to the affected section of the CO_2 piping, with class surveyor witnessing satisfactory operation of the CO_2 system. Case closed.

Passenger Injury (26SEP2023): A foreign flagged passenger vessel reported a passenger injury onboard while in international waters transiting inbound to Pier 27. The passenger broke their right ankle while walking around the vessel. Passenger received treatment from the vessel's clinic and disembarked at Pier 27. Case closed.

Loss of Propulsion (27SEP2023): A foreign flagged passenger vessel experienced a loss of propulsion while approaching an anchorage. The pilot reported multiple failed start attempts of their propulsion, and the astern propulsion ultimately started. In addition, the vessel could not reach normal RPMs for full astern. Case pends.

Passenger Injury, M/V SONOMA (29SEP2023): A U.S. flagged ferry vessel reported a passenger injury while moored at the Sausalito ferry terminal. The passenger triped and fell on a bench, suffering llacerations to their face and hands and an internal injury to their leg. The passenger refused transport to the hospital by EMS, but instead had someone else take them to the ER. Case pends.

VESSEL SAFETY CONDITIONS

Operational Control (02SEP2023): A foreign flagged tank vessel was issued an Operational Control (Code 60, Prior to Movement) for experiencing a steering casualty. Class surveyor verified the #2 steering gear motor had been properly repaired and functioned satisfactorily. Operational Control lifted. Case closed.

Operational Control (07SEP2023): A U.S. flagged small passenger vessel was issued an Operational Control (Code 701, Prior to Carriage of Passengers) for failure to complete an annual inspection within the allotted timeframe. Case pends.

Operational Control (12SEP2023): A U.S. flagged small passenger vessel was issued an Operational Control (Code 60, Prior to Movement) for failure to complete required annual firefighting equipment maintenance within the appropriate timeframe. Case pends.

Operational Control (19SEP2023): A U.S. flagged small passenger vessel was issued an Operational Control (Code 701, Prior to Carriage of Passengers) for an 8-inch fracture in the port fore peak void below the waterline, allowing water ingress while underway. Coast Guard witnessed corrected deficiencies; Operational Control lifted. Case closed.

Operational Control (19SEP2023): A foreign flagged tank vessel was issued an Operational Control (Code 17, Prior to Departure) for failure to have 05 inflatable liferafts serviced by qualified personnel. Class surveyor verified liferaft servicing/inspection completed by qualified personnel. Operational Control lifted. Case closed.

Operational Control (20SEP2023): A U.S. flagged small passenger vessel was issued an Operational Control (Code 60, Prior to Movement) for discharge of oil when the crew activated the fixed bilge pump system. Coast Guard witnessed satisfactory operation of cleaned bilge pump system. Operational Control lifted. Case closed.

Operational Control (25SEP2023): A U.S. flagged cargo vessel was issued an Operational Control (Code 60, Prior to Movement) for fractured piping on their CO_2 fixed-firefighting system. Class surveyor witnessed satisfactory repairs to the CO_2 fixed-firefighting system piping. Operational Control lifted. Case closed.

Operational Control (27SEP2023): A foreign flagged pasenger vessel was issued an Operational Control (Code 60, Prior to Movement) for experiencing a loss of propulsion while transiting through the San Francisco COTP zone. Case pends.

Operational Control (28SEP2023): A U.S flagged articulated tug and barge was issued an Operational Control (Code 705, Prior to Discharge of Ballast Water into U.S. Waters) for taking on untreated ballast water without an installed ballast water treatment system. Case pends.

NAVIGATIONAL SAFETY
Letter of Deviation (LOD), Inoperable AIS (01SEP2023): A foreign flagged container vessel was issued an inbound LOD for inoperable AIS. Repairs were conducted and equipment is working properly. Case closed.
Letter of Deviation (LOD), Inoperable Speed Log (08SEP2023): A U.S. flagged oil tanker was issued an outbound LOD for inoperable speed log. Vessel conducted repairs and the equipment is working properly. Case closed.

SIGNIFICANT INCIDENT MANAGEMENT DIVISION CASES
Letter of Warning (03SEP2023): IMD received notification of a commercial fishing vessel that discharged an unknown amount of oily bilge water into the Sacramento River. IMD was notified that the vessel's shaft packing was damaged and actively discharging oily bilge water. Sacramento Marina deployed boom around vessel and conducted pollution cleanup. A technician was hired to secure the pollution source. IMD issued a Notice of Federal Interest and a Letter of Warning. Case Closed.
Ongoing Federal Case (04SEP2023): IMD received notification that a 96' retired Navy tug had partially sunk and was actively discharging into Little Potato Slough, with a potential of 1600 gal of petroleum products onboard. USCG, CAL-OSPR, and San Joaquin County Sheriffs established a Unified Command. The OSLTF is being utilized and an Oil Spill Response Company has been hired to create a pollution removal plan and tend to the boom weekly. The product removal and disposition pend while the final salvage plan is routed for approval from the UC. No responsible party has been designated, but a NOFI has been issued to a known operator. Case remains Open.

PREVENTION / RESPONSE - SAN FRANCISCO HARBOR SAFETY STATISTICS
September 2023

PORT SAFETY CATEGORIES*	Sep-2023	Sep-2022	**3yr Avg
Total Number of Port State Control Detentions:	**0**	**0**	**0.08**
SOLAS (0), STCW (0), MARPOL (0), ISM (0), ISPS (0)			
Total Number of COTP Orders:	**2**	**5**	**3.33**
Navigation Safety (2), Port Safety & Security (0), ANOA (0)			
Marine Casualties (reportable CG 2692) within SF Bay:	**8**	**8**	**6.81**
Allision (1), Collision (0), Fire (0), Capsize (0), Grounding (0), Sinking (0)			
Steering (1), Propulsion (2), Personnel (3), Other (1), Power (0)			
Total Number of (routine) Navigation Safety issues/Letters of Deviation:	**2**	**0**	**2.19**
Radar (0), Gyro (0), Steering (0), Echo Sounder (0), AIS (1)			
ARPA (0), Speed Log (1), R.C. (0), Other (0)			
Reported or Verified "Rule 9" or other Navigational Rule Violations:	**1**	**0**	**0.08**
Significant Waterway events/Navigation related Cases:	**0**	**0**	**0.00**
Total Port Safety (PS) Cases opened	**13**	**13**	**12.50**

MARINE POLLUTION RESPONSE

Pollution Discharge Sources (Vessels)	Sep-2023	Sep-2022	**3yr Avg
U.S. Commercial Vessels	**1**	**1**	**0.47**
Foreign Freight Vessels	**1**	**0**	**0.14**
Public Vessels	**3**	**2**	**0.94**
Commercial Fishing Vessels	**2**	**2**	**0.67**
Recreational Vessels	**9**	**5**	**6.94**
Pollution Discharge Sources (Facilities)	**Sep-2023**	**Sep-2022**	****3yr Avg**
Regulated Waterfront Facilities	**0**	**1**	**0.28**
Regulated Waterfront Facilities - Fuel Transfer	**0**	**0**	**0.06**
Other Land Sources	**9**	**7**	**3.25**
Mystery Spills - Unknown Sources	**11**	**7**	**5.11**
Number of Pollution Incidents (By Spill Size)	**Sep-2023**	**Sep-2022**	****3yr Avg**
Spills < 10 gallons	**13**	**19**	**9.36**
Spills 10 - 100 gallons	**3**	**2**	**1.69**
Spills 100 - 1000 gallons	**0**	**0**	**0.31**
Spills > 1000 gallons	**0**	**0**	**0.00**
Spills - Unknown Size	**20**	**4**	**6.03**
Total Pollution Incidents	**36**	**25**	**17.39**
Oil Discharge/Hazardous Materials Release Volumes by Spill Size	**Sep-2023**	**Sep-2022**	****3yr Avg**
Estimated spill amount from U.S. Commercial Vessels	**1.00**	**1.00**	**2.94**
Estimated spill amount from Foreign Freight Vessels	**unk**	**0.00**	**0.28**
Estimated spill amount from Public Vessels	**45.10**	**2.00**	**8.20**
Estimated spill amount from Commercial Fishing Vessels	**0.00**	**24.00**	**10.99**
Estimated spill amount from Recreational Vessels	**unk**	**4.00**	**75.90**
Estimated spill amount from Regulated Waterfront Facilities	**0.00**	**1.00**	**22.56**
Estimated spill amount from Regulated Waterfront Facilities - Fuel Transfer	**0.00**	**0.00**	**0.06**
Estimated spill amount from Other Land Sources	**14.20**	**14.00**	**53.03**
Estimated spill amount from Unknown Sources (Mystery Sheens)	**unk**	**unk**	**0.00**
Total Oil Discharge and/or Hazardous Materials Release (Gallons)	**60.30**	**46.00**	**173.95**
Penalty Actions	**Sep-2023**	**Sep-2022**	****3yr Avg**
Civil Penalty Cases	**0**	**0**	**0.03**
Notice of Violations	**0**	**0**	**0.50**
Letters of Warning	**3**	**2**	**5.08**
Total Penalty Actions	**3**	**2**	**5.61**

* NOTE: Values represent all cases within the HSC jurisdiction during the period. Significant cases are detailed in the narrative.

** NOTE: Values represent an average month over a 36 month period for the specified category of information.

Harbor Safety Committee
Of the San Francisco Bay Region

Report of the
U.S. Army Corps of Engineers, San Francisco District
October 12, 2023

1. CORPS O&M DREDGING PROGRAM

The FY23 dredging program has entered the construction phase with six of the seven planned projects having been awarded. Funding is provided in the FY 2023 Consolidated Appropriations Act, Public Law 117-328, signed into law on December 29, 2022. The FY23 project schedules are included at the end of this report. Adjustments may be made to these schedules as circumstances warrant.

FY 2023 DREDGING

a. **Richmond Inner Harbor** – Bid Opening was held on May 26 with contract award to The Dutra Group on June 8. Dredging started on July 7; however, the contractor demobilized at the end of August to start work on the Sacramento Deep Water Ship Channel and then the Suisun Bay Channel project. Once those two are completed, they will return to Richmond Inner Harbor to complete the dredging.

b. **Oakland Harbor –** Bid Opening was held on June 2 with contract award to Manson Construction on June 16. Dredging started on August 7; estimated completion on or about January 1.

c. **San Joaquin River (Port of Stockton) –** Bid Opening was held on June 28 with contract award to Ross Island Sand & Gravel on July 7. Dredging started on July 28; estimated completion on or about November 30.

d. **Sacramento River Deep Water Ship Channel –** Bid Opening was held on July 7 with contract award to The Dutra Group on July 21. **Dredging started on August 31 and dredging completed on September 13.**

e. **Redwood City Harbor –** Bid opening was held on August 7. Both bids were over twice the Government Estimate, and the Government determined the contract was not awardable due to insufficient funds. **A new solicitation with a revised scope of work was advertised starting on - September 15; bid opening will be held on October 16.**

f. **Maritime Administration (MARAD) Suisun Bay Reserve Fleet (SBRF) –** This is not a standard Corps dredging project – the Maritime Administration has requested Corps support in dredging areas at their small boat slips in Suisun Bay. Bid opening was held on August 14 with contract award to Pacific Dredge on August 21. **Dredging started on October 6; estimated completion on or about November 19.**

g. **Suisun Bay Channel (and New York Slough) –** Bid opening was held on July 24 with contract award to Camenzind-Dutra JV on August 4. **Dredging started on September 18; estimated completion on or about October 23.**

h. SF Main Ship Channel – The Government Hopper Dredge Essayons arrived on station and started dredging on May 28. Following dry-dock repairs in early June, the Essayons returned to the Main Ship Channel on July 14 to resume dredging operations. The Essayons worked in the MSC until July 22, then moved to Pinole Shoal.

i. San Pablo Bay (Pinole Shoal) – Following completion of the Main Ship Channel, the Essayons moved to Pinole Shoal on July 22 and dredged there over the next 9 days completing the project on July 31. After completion the Essayons departed the Bay Area and returned to Portland.

j. Richmond Outer Harbor (and Richmond Long Wharf) – Dredging is deferred to FY24 to remain in compliance with the Water Quality Certification for SF Bay Area Dredging.

2. EMERGENCY (URGENT & COMPELLING) DREDGING: There are currently no emergency dredging events happening in the Bay Area. The last event took place in early June 2022, when Bulls Head Reach of Suisun Bay Channel required emergency dredging.

3. DEBRIS REMOVAL – Debris removal for September was 21.3 tons. Dillard: 18 tons; Raccoon: 3.3 tons, including one abandoned vessel. Average debris removal for September from 2013 to 2022 is 36 tons (Range: 8.5 – 71.5).

BASEYARD DEBRIS COLLECTION TOTALS:

MONTH	RACCOON	DILLARD	MISC	TOTAL
2023	TONS	TONS	TONS	TONS
JAN	87	112	0	199
FEB	19	48	0	67
MAR	2	41	0	43
APR	1	11.5	0	12.5
MAY	0.8	32	0	32.8
JUN	4	16.5	0	20.5
JUL	27.5	31	0	58.5
AUG	28	41.5	0	69.5
SEP	3.3	18	0	21.3
OCT				
NOV				
DEC				

YR TOTAL
524.1

4. UNDERWAY OR UPCOMING HARBOR IMPROVEMENTS

Oakland Harbor Turning Basins Widening Study: This study will investigate and determine if there is a technically feasible, economically justifiable, and environmentally acceptable recommendation for federal participation in a navigation improvement project to the existing -50-foot Oakland Harbor Federal Navigation Project. The Draft Integrated Feasibility Report (IFR) was released on 17 December 2021 for public comment. A Draft IFR/EA and a 404(b)(1) analysis is now included as appendix A-3 of the Feasibility Study. A complete list of updates from the initial Draft IFR/EA is in the executive summary of the 2nd Draft IFR/EA. The Study is scheduled to be completed in Jan 2024 and the Chief's Report is scheduled to be completed end of May 2024.

The 2023 Revised Draft IFR/EA can be found on our website:
https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Current-Projects/Oakland-Harbor-Turning-Basins-Widening/

5. OTHER WORK

Regional Dredge Material Management Plan: Following virtual charrettes with the public and stakeholders in July 2020, SFEI was contracted to perform a data gap analysis and develop scopes to address the gaps with advice from an Interagency Working Group (IWG). Sediment Transport Modeling (ERDC), Regional Analysis, and Ecological Modeling and Benefits Analysis and Decision Support efforts have begun. The USACE Plan Formulation process has led to a draft array of alternatives to compare and ultimately for a recommended plan for the FY25+ dredging program, until the next annual update pending funding (likely FY25). Information on the RDMMP and latest outreach meetings and notes can be found on our website here:

https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Regional-Dredge-Material-Management-Plan/

USACE Work Plan Web Address: http://www.usace.army.mil/Missions/Civil-Works/Budget/

6. HYDROGRAPHIC SURVEY UPDATE

Address of Corps' web site for completed hydrographic surveys:

http://www.spn.usace.army.mil/Missions/Surveys,StudiesStrategy/HydroSurvey.aspx

The following surveys are posted:

Alameda Naval Navigation Channel: Condition survey of November 1 and 2, 2022.
Berkeley Marina (Entrance Channel): Condition survey of February 28, 2023.
Islais Creek Channel: Condition survey of July 21, 2023.
Larkspur Ferry Channel: Condition survey of February 24, 2023.
Mare Island Strait: Condition survey of September 16, 2022.
Marinship Channel (Richardson Bay): Condition survey of November 7, 2022.
Napa River: Condition survey of September 6-11, 2023.
Northship Channel: Condition survey of September 27 and November 4, 2022.
Oakland Inner Harbor: Condition survey of June 29 and July 1, 2023.
Oakland Inner Harbor (Brooklyn Basin): Condition survey of 15-20 January 2021.
Oakland Outer Harbor: Condition survey of June 29, 2023.
Petaluma River (Across-the-Flats): Condition survey of August 9, 2023.
Petaluma River (Main Channel): Condition survey of August 24, 2023.
Petaluma River (Extended Channel): Condition survey of November 2-4, 2022.
Pinole Shoal Channel: Post dredge survey of August 3-8, 2023
Redwood City Harbor: Condition survey of September 26, 2023.
Richmond Inner Harbor: Condition survey of June 15-16, 2023.
Richmond Inner Harbor (Santa Fe Channel): Condition survey of November 28, 2022.
Richmond Outer Harbor (Longwharf): Condition survey of July 18, 2023.
Richmond Outer Harbor (Southampton Shoal): Condition survey of July 25, 2023.
Sacramento River Deep Water Ship Channel: Post dredge survey of August 13-17 and September 9, 13, 2023.
San Bruno Shoal: Condition survey of September 28, 2023.
San Francisco Main Ship Channel: Condition survey of July 27–August 9, 2023.
San Leandro Marina (and Channel): Condition survey of March 30 and April 1, 2015.
San Rafael (Across-the-Flats): Condition survey of August 17, 2023.
San Rafael (Creek): Condition survey of August 17, 2023.
Stockton Ship Channel: Condition survey of July 27-29, 2023.
Suisun Bay Channel: Condition survey of August 28-29, 2023.
Suisun Bay Channel (Bullshead Reach): Condition survey of August 28-29, 2023.
Suisun Bay Channel (New York Slough): Condition survey of August 28-29, 2023.
Suisun Slough: Condition survey of November 30 and December 1, 2022.

Disposal Site Condition Surveys:

SF-08 (Main Ship Channel Disposal Site): Condition survey of May 26, 2023.
SF-09 (Carquinez): Condition survey of July 6, 2023.
SF-10 (San Pablo Bay): Condition survey of July 6, 2023.
SF-11 (Alcatraz Island): Condition survey of September 21, 2023.
SF-16 (Suisun Bay Disposal Site): Condition survey of July 12, 2023.
SF-17 (Ocean Beach Disposal Site): Condition survey of May 26, 2023.

Requested Surveys:

Pre/Post-dredge and condition surveys have been completed for all of San Francisco District's in-bay projects dredged in FY22.

Channel Condition Report (CCR):

Attached is the Channel Condition Report (CCR) for all Corps maintained channels dated **10 OCT 2023**. The CCR is generated by the USACE eHydro database and is not a substitute for the controlling depths set by the SF Bar Pilots. Please see the respective bathymetric plots for locations (highlighted in red) of the shoaliest soundings reports in the CCR.

FY 2023 O&M DREDGING PLAN*

Project	Current Bid Open	Current Award	FY2023 MAR	APR	MAY	JUN	JUL	AUG	SEP	FY2024 OCT	NOV	DEC	JAN	FEB	Estimated CY	Dredge Type	Placement Site
CONTRACT CLAMSHELL OR CUTTERHEAD PIPELINE																	
Richmond Inner Harbor	26-MAY (A)	8-JUN (A)													475 Kcy	Clam Shell	BU
Oakland Harbor	2-JUN (A)	16-JUN (A)													725 Kcy	Clam Shell	BU
San Joaquin River (Port of Stockton)	28-JUN (A)	7-JUL (A)													140 Kcy	Cutterhead or Clamshell	Various Upland
Sacramento River (30 Foot Project)	7-JUL (A)	21-JUL (A)													35 Kcy	Cutterhead or Clamshell	Various Upland
Suisun Bay Channel	24-JUL (A)	4-AUG (A)													10 Kcy 86.5 Kcy	Clam Shell	BU SF-16
Redwood City Harbor	16-OCT	30-OCT													300 Kcy 100 Kcy	Clam Shell	1122 Pilot SF-11 SF-DODS
MARAD SBRF Dredging	14-AUG (A)	21-AUG (A)													90 Kcy	Clam Shell	BU
WEST COAST HOPPER CONTRACT																	
Humboldt Bar & Entrance Channels	3-Apr	13-Apr						Deleted from WCH Contract							300 Kcy	WCHC (Portland)	HOODS
GOVERNMENT HOPPER																	
Humboldt Interior Channels	N/A	N/A		YAQ											150 Kcy	Govt Hopper	HOODS
Humboldt Bar & Entrance Channels	N/A	N/A		ESS											600 Kcy	Govt Hopper	HOODS
SF Main Ship Channel	N/A	N/A			ESS										350 Kcy	Govt Hopper	OBDS SF-8
Pinole Shoal	N/A	N/A					ESS								250 Kcy	Govt Hopper	SF-10 SF-11

Solicitation
Bid Opening
Contract Award
Hopper Dredging

WCH West Coast Hopper Contract
YAQ Gov't Dredge Yaquina
ESS Gov't Dredge Essayons

Environmental Window
Mobilization
Physical Dredging

* Program execution is based on the FY23 President's Budget, FY23 Workplan, and carryover funds.

Date of Last Update: *10/5/2023*

REPORT OF CHANNEL CONDITIONS
400 FEET WIDE OR GREATER

Date 10/10/2023

To: Navigation Interests	From:	US Army Corps of Engineers San Francisco District 450 Golden Gate Ave San Francisco, CA 94102						
RIVER/HARBOR NAME AND STATE SUISUN BAY CALIFORNIA					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD			
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)				
San Francisco Mainship San Francisco Mainship	08-09-2023	2000	4.96	55	50.1	55.1	55.2	53.9
Redwood City Harbor Redwood City Harbor	09-26-2023	300 943	3.94	30	18.2	25.6	23.9	20.5
Richmond Inner Harbor Entrance Channel	06-28-2023	809 1021	0.96	38	No Data	No Data	No Data	36.3
Richmond Inner Harbor Approach Channel	06-15-2023	809 1201	3.09	38	33.8	35.1	35.9	34.5
Richmond Inner Harbor Santa Fe Channel	11-28-2022	195 509	0.37	38	25.6	27.4	27.1	21.2
Richmond Outer Harbor Richmond Outer Harbor	07-25-2023	600 1291	3.25	45	40.4	44.7	44.5	42.7
Richmond Outer Harbor Longwharf Turning Basin	07-18-2023	2188 5598	0.88	45	31.2	No Data	No Data	No Data
San Rafael ATF Across the Flats	08-17-2023	100	2.25	8	6.0	6.1	6.6	5.5
San Rafael River Inner Canal Channel	08-17-2023	60 160	1.55	6	4.4	4.9	4.7	5.0
Petaluma River Main Channel	08-24-2023	100 361	4.06	8	3.4	1.4	1.2	3.7
Petaluma River ATF Across the Flats	12-15-2020	200 206	5.68	8	6.3	8.8	8.3	8.2
Mare Island Strait Causeway to Asylum Slough	09-06-2023	75 245	3.19	15	1.8	9.1	8.9	7.1
Napa River Asylum Slough to Napa City	09-06-2023	102 183	9.92	10	4.3	5.8	5.5	1.0
Brooklyn Basin Brooklyn Basin	01-15-2021	147 1501	0.94	35	6.2	8.0	17.3	7.2
Brooklyn Basin Brooklyn Basin	01-15-2021	250 1010	2.74	35	8.4	3.9	3.0	3.0
Oakland Harbor Oakland Inner Harbor	06-29-2023	544 1997	4.62	50	47.5	48.4	48.4	46.9

To: Navigation Interests	From:	US Army Corps of Engineers San Francisco District 450 Golden Gate Ave San Francisco, CA 94102						
RIVER/HARBOR NAME AND STATE SUISUN BAY CALIFORNIA					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD			
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)				
Oakland Harbor Oakland Outer Channel	06-29-2023	296 1761	2.52	50	46.4	48.2	48.7	47.8
Humboldt Bay Bar and Entrance Channel	06-29-2023	500 2113	2.60	48	27.2	40.6	37.7	27.9
Humboldt Bay Eureka Channel	06-29-2023	400 416	1.69	26	2.0	3.7	12.1	6.6
Humboldt Bay Fields Landing Channel	06-29-2023	300 770	2.35	26	12.5	26.8	25.3	20.8
Humboldt Bay North Bay Channel	06-29-2023	400 657	3.04	38	33.2	37.7	36.3	18.6
Humboldt Bay Samoa Channel	06-29-2023	400 1000	1.83	38	32.9	35.2	34.2	17.2
Pinole Shoal Channel Pinole Shoal Channel	08-08-2023	600 1644	10.40	35	26.7	36.3	36.1	33.9
Suisun Bay Channel Suisun Bay (0+00 to 150+00)	08-28-2023	300	2.84	35	36.6	36.7	36.8	35.9
Suisun Bay Channel Suisun Bay (150+00 to 733+45)	08-28-2023	300	11.10	35	33.1	34.5	33.6	25.7
Suisun Bay Channel Anchorage Suisun Bay Channel Anchorage	01-17-2023	400	0.90	35	34.4	No Data	No Data	No Data
New York Slough New York Slough (0+00 to 232+03)	08-28-2023	400 411	4.42	35	32.3	33.0	34.0	33.4

REPORT OF CHANNEL CONDITIONS
400 FEET WIDE OR GREATER

Date 10/10/2023

To: Navigation Interests	From:	US Army Corps of Engineers San Francisco District 450 Golden Gate Ave San Francisco, CA 94102						
RIVER/HARBOR NAME AND STATE SAN LEANDRO CALIFORNIA					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD			
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)				
San Bruno Shoal San Bruno Shoal	09-28-2023	500	5.66	30	28.9	31.0	31.3	30.1
Richardson Bay/Marinship Richardson Bay/Marinship	11-07-2022	300 1069	2.11	20	4.7	5.2	5.3	4.8
Islais Creek Islais Creek	07-21-2023	500 1424	1.71	40	30.9	36.8	37.1	23.9
Alameda Naval Air Alameda Naval Air	11-01-2022	1000 4178	2.90	37	11.6	12.2	18.6	16.3
Mare Island Strait Mare Island Strait	09-16-2022	400 606	3.37	30	27.4	29.1	31.9	32.4
Larkspur Channel Larkspur Channel	02-24-2023	231 542	2.37	13	11.9	12.5	12.7	12.0
Northship Channel Northship Channel	09-27-2022	3576 4769	5.97	45	23.2	37.2	37.2	35.4
Berkeley Marina Berkeley Marina	02-28-2023	100 142	1.36	15	3.5	3.6	4.1	4.1
Bodega Bay Bodega Bay	09-29-2022	100 400	3.46	12	3.1	9.5	9.7	7.1
Moss Landing Moss Landing	01-24-2023	120 405	0.98	15	8.6	7.4	7.6	8.5
Noyo River Entrance Channel	03-16-2023	97 150	0.67	10	7.2	9.5	9.8	8.0
Noyo River Channel	03-16-2023	97 150	0.67	10	7.3	9.4	9.0	4.8
Crescent City Entrance Channel	01-29-2023	200 320	0.42	20	17.0	17.6	16.2	15.1
Crescent City Inner Harbor Basin Channel	01-29-2023	200 300	0.39	15	14.6	14.7	14.7	13.0
Crescent City Marina Access Channel	01-29-2023	228 170	0.22	15	11.4	12.2	11.7	9.9
SAN LEANDRO MARINA Approach Channel	03-30-2015	200	3.50	7	2.8	3.6	3.4	3.2

REPORT OF CHANNEL CONDITIONS
400 FEET WIDE OR GREATER

Date 10/10/2023

To: Navigation Interests	From: US Army Corps of Engineers San Francisco District 450 Golden Gate Ave San Francisco, CA 94102							
RIVER/HARBOR NAME AND STATE SAN LEANDRO CALIFORNIA					MINIMUM DEPTHS IN EACH 1/4 WIDTH OF CHANNEL ENTERING FROM SEAWARD			
NAME OF CHANNEL	DATE OF SURVEY	AUTHORIZED PROJECT			LEFT OUTSIDE QUARTER (feet)	LEFT INSIDE QUARTER (feet)	RIGHT INSIDE QUARTER (feet)	RIGHT OUTSIDE QUARTER (feet)
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)				
SAN LEANDRO MARINA North Arm	03-15-2010	170	0.30	7	2.7	3.6	3.8	3.9
SAN LEANDRO MARINA South Arm	03-15-2010	150	0.30	7	3.3	4.7	4.6	4.8

Office of Spill Prevention and Response

Harbor Safety Committee of the
San Francisco Bay Region Clearing House
c/o Marine Exchange of the San Francisco Bay Region
10 Commodore Drive
Emeryville, California 94608
415-441-6600 -- hsc@sfmx.org

San Francisco Clearinghouse Report

October 12, 2023

- In September the clearinghouse did not contact OSPR regarding any possible escort violations.

- In September the clearinghouse did not receive any notifications of vessels arriving at the Pilot Station without escort paperwork.

- The clearinghouse has not contacted OSPR so far in 2023 regarding possible escort violations. The clearinghouse did not contact OSPR in 2022 or 2021 regarding possible escort violations. The clearinghouse contacted OSPR 1 time in 2020 regarding a possible escort violation. The clearinghouse did not contact OSPR in 2019 regarding possible escort violations. The clearinghouse contacted OSPR 1 time in 2018 about a possible escort violation. The clearinghouse did not contact OSPR in 2017 about possible escort violations. The clearinghouse contacted OSPR 1 time in 2016 about a possible escort violation. The clearinghouse contacted OSPR 3 times in 2015 about possible escort violations. The clearinghouse contacted OSPR 5 times regarding possible escort violations in 2014. The clearinghouse contacted OSPR 1 time in 2013. The clearinghouse contacted OSPR 3 times in 2012 regarding possible escort violations, 3 times in 2011, 6 times in 2010, 8 times 2009; 4 times 2008; 9 times in 2007; 9 times in 2006; 16 times in 2005; 24 times in 2004; twice in 2003; twice in 2002; 6 times in 2001; 5 times in 2000.

- In September there were 109 tank vessel arrivals; 19 ATBs, 6 Chemical Tankers, 16 Chemical/Oil Tankers, 30 Crude Oil Tankers, 1 LPG, 21 Product Tankers, and 16 Tugs with Barges.

- In September there were 265 total vessel arrivals.

San Francisco Bay Clearinghouse Report For September 2023

San Francisco Bay Region Totals

	2023		2022	
Tanker arrivals to San Francisco Bay	74		50	
ATB arrivals	19		18	
Barge arrivals to San Francisco Bay	16		15	
Total Tanker and Barge Arrivals	109		83	
Tank ship movements & escorted barge movements	367		273	
Tank ship movements	219	59.67%	177	64.84%
Escorted tank ship movements	166	45.23%	138	50.55%
Unescorted tank ship movements	53	14.44%	39	14.29%
Tank barge movements	148	40.33%	96	35.16%
Escorted tank barge movements	24	6.54%	8	2.93%
Unescorted tank barge movements	124	33.79%	88	32.23%

Percentages above are percent of total tank ship movements & escorted barge movements for each item.

Escorts reported to OSPR	0		0	

Movements by Zone	Zone 1	%	Zone 2	%	Zone 4	%	Zone 6	%	Total	%
Total movements	214		356		0		159		729	
Unescorted movements	97	45.33%	170	47.75%	0	0.00%	65	40.88%	332	45.54%
Tank ships	70	32.71%	117	32.87%	0	0.00%	56	35.22%	243	33.33%
Tank barges	27	12.62%	53	14.89%	0	0.00%	9	5.66%	89	12.21%
Escorted movements	117	54.67%	186	52.25%	0	0.00%	94	59.12%	397	54.46%
Tank ships	115	53.74%	163	45.79%	0	0.00%	83	52.20%	361	49.52%
Tank barges	2	0.93%	23	6.46%	0	0.00%	11	6.92%	36	4.94%

Notes:
1. Information is only noted for zones where escorts are required.
2. All percentages are percent of total movements for the zone.
3. Every movement is counted in each zone transited during the movement.
4. Total movements is the total of all unescorted movements and all escorted movements.

San Francisco Bay Clearinghouse Report For 2023

San Francisco Bay Region Totals

	2023		2022	
Tanker arrivals to San Francisco Bay	614		706	
ATB arrivals	124		177	
Barge arrivals to San Francisco Bay	116		129	
Total Tanker and Barge Arrivals	854		1,012	
Tank ship movements & escorted barge movements	3,017		3,363	
Tank ship movements	1,760	58.34%	1,999	59.44%
Escorted tank ship movements	1,399	46.37%	1,596	47.46%
Unescorted tank ship movements	361	11.97%	403	11.98%
Tank barge movements	1,257	41.66%	1,364	40.56%
Escorted tank barge movements	164	5.44%	171	5.08%
Unescorted tank barge movements	1,093	36.23%	1,193	35.47%

Percentages above are percent of total tank ship movements & escorted barge movements for each item.

Escorts reported to OSPR	0		0	

Movements by Zone	Zone 1	%	Zone 2	%	Zone 4	%	Zone 6	%	Total	%
Total movements	1,697		2,922		0		1,202		5,821	
Unescorted movements	726	42.78%	1,381	47.26%	0	0.00%	540	44.93%	2,647	45.47%
Tank ships	558	32.88%	1,028	35.18%	0	0.00%	472	39.27%	2,058	35.35%
Tank barges	168	9.90%	353	12.08%	0	0.00%	68	5.66%	589	10.12%
Escorted movements	971	57.22%	1,541	52.74%	0	0.00%	662	55.07%	3,174	54.53%
Tank ships	912	53.74%	1,385	47.40%	0	0.00%	594	49.42%	2,891	49.67%
Tank barges	59	3.48%	156	5.34%	0	0.00%	68	5.66%	283	4.86%

Notes:
1. Information is only noted for zones where escorts are required.
2. All percentages are percent of total movements for the zone.
3. Every movement is counted in each zone transited during the movement.
4. Total movements is the total of all unescorted movements and all escorted movements.

NOAA Report to the San Francisco Bay Harbor Safety Committee
October 2023

Production of Raster Charts is Ending

NOAA is in the process of ending production of the raster chart products, including the traditional paper chart. The final charts will be canceled in December, 2024.

The remaining raster charts in and around San Francisco Bay will enter "LAST EDITION" status in February, 2024. This (and all charts entering LAST EDITION status) will be announced in the Local Notice to Mariners issued by the United States Coast Guard.

The "LAST EDITION" announcement starts a 6-month warning period, to final cancellation. Therefore, these charts will be officially canceled in August, 2024.

The general coastal charts along the west coast from the Mexican border to Canada, will enter "LAST EDITION" status in June, 2024, and canceled in December, 2024.

Once canceled, the charts will not be available for download from the NOAA website, they will not be mentioned in the Local Notice to Mariners, they technically no longer exist.

The final and last edition of all charts will be archived and available forever, from our historical chart catalog website here: https://historicalcharts.noaa.gov/ Charts from the historical chart website are not updated and therefore are not to be used for navigation purposes.

For real time navigation, mariners should be using the NOAA Electronic Navigational Chart (ENC) in an appropriate navigation system.

For users wanting a large format paper representation of the ENC for situational awareness or planning purposes, NOAA has the Custom Chart Tool that can convert the ENC data into a PDF that can be printed.

The NOAA Custom Chart Tool is available here: https://devgis.charttools.noaa.gov/pod/

Several print vendors will print the PDF on high quality paper and/or make custom chart products for direct sale to the public. More information can be obtained by contacting those vendors directly and on the Coast Survey website here: https://www.nauticalcharts.noaa.gov/publications/print-agents.html#ncc

Any questions on whether the custom chart printed products can be used to meet carriage requirements should be directed to the USCG.

If you have any questions or want to know the cancellation date for a specific chart in the NOAA suite, you can contact the CA Navigation Manager at jeffrey.ferguson@noaa.gov

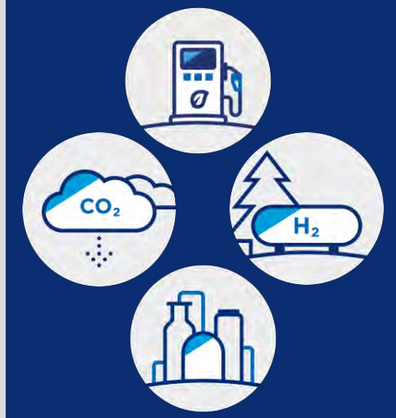
Hydrogen

Harbor Safety Committee Meeting

Mallika Mukundan
10/12/23

the human energy company™

Welcome



- Introductions
- Chevron Lower Carbon Strategy & Actions
- New Energies Organization
  - West Coast Portfolio Overview
- H2 basics
- Chevron Partnerships
- Q&A
- Next Steps

The future of energy

Balancing supply and demand is essential

World will need energy in multiple forms

Collaboration critical to the future of energy

Our Energy Transition strategy

Advance a lower carbon future

Lower carbon intensity of our operations

Target
35% carbon reduction in Upstream by 2028

Maintain
1st quartile performance in oil and gas GHG intensity

Focus
on methane, flaring and energy management

Aim
2050 net zero aspiration* for upstream Scope 1 & 2 emissions

Grow lower carbon businesses

Renewable fuels & products

Hydrogen**

Carbon capture, utilization & storage

Offsets & emerging lower carbon opportunities

Chevron expects to triple our lower carbon capital versus prior guidance to over $10 billion between now and 2028:
$2B in carbon reduction projects and **$8B in low carbon investments**

* Upstream emission intensity Scope 1 and 2 in $kgCO_2e/BOE$.Achieving the Upstream 2050 net zero aspiration will require continued partnership and progress in technology, policy, regulations, and offset markets.

**Chevron's approach to hydrogen envisions the use of green, blue, and gray hydrogen. See Climate Change Resilience Report pg 51.to learn more.

Advancing growth in our lower carbon energy

Strengthening execution and pace

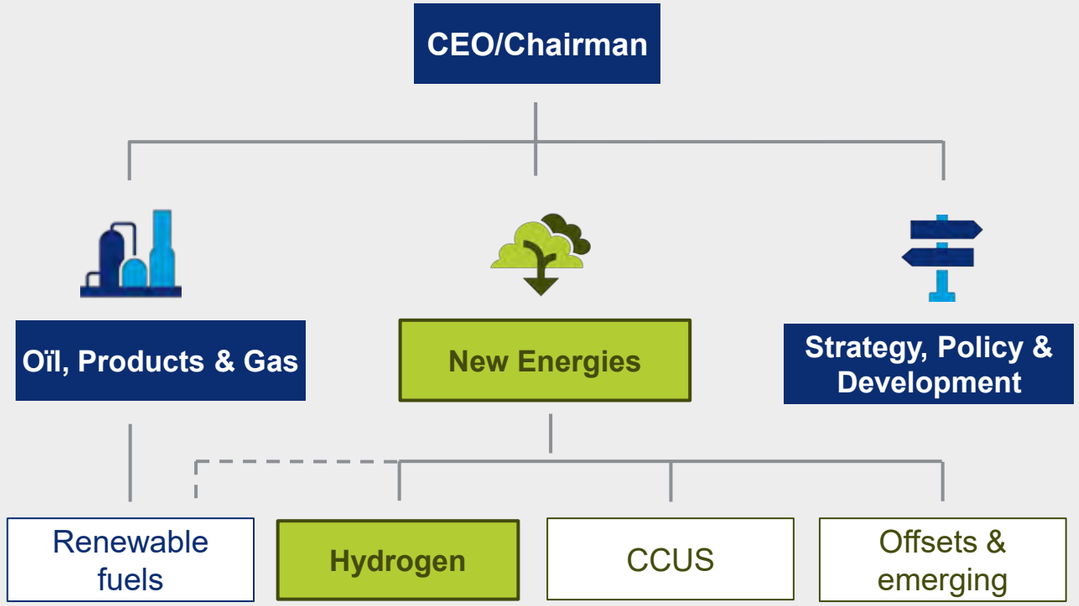
Consolidated
Oil, Products & Gas

Dedicated
New Energies Team

Renewable fuels integrated
with Downstream

Continue
venture investments and renewable power purchase agreements (PPAs)

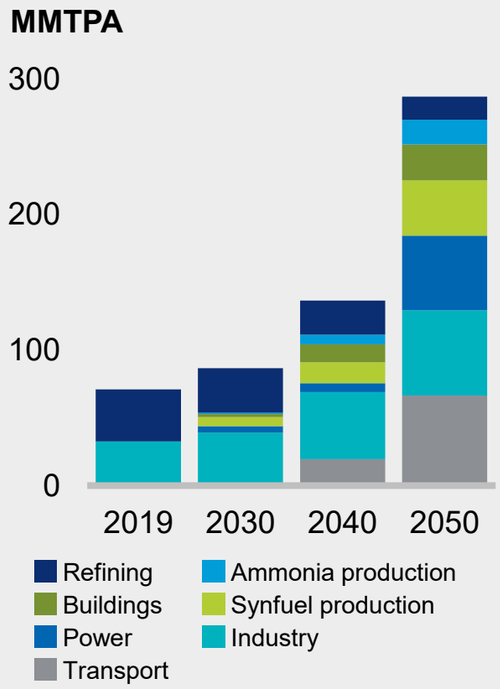
Align and leverage strengths
Strategy, Policy and Business Development



The role of hydrogen – the future is lower carbon

Part of the solution where electrification of demand is not feasible

IEA SDS H_2 demand projections



Anticipated

6%

of total energy consumption by 2050

Requires

4-fold

growth from today

~500

projects under assessment/ development

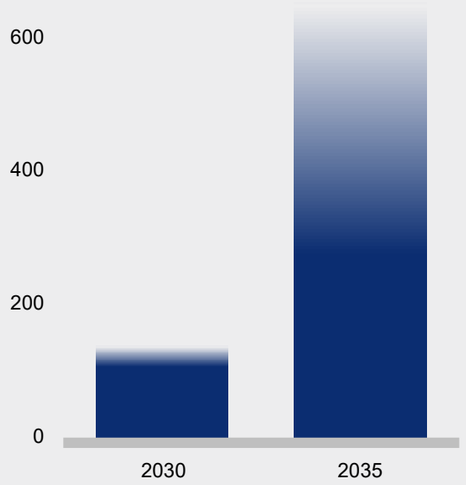
Source: IEA, Energy Technology Perspectives 2020 under IEA's Sustainable Development Scenario (net zero by 2070; 2deg)
Note: Ammonia refers to fuel production for shipping sector; Industry includes Hydrogen for industrial ammonia production

Chevron New Energies – hydrogen

Chevron New Energies is seeking to create a profitable, large-scale hydrogen business building upon our assets, our capabilities and our customer relationships

Hydrogen forecasts

Thousand tonnes per annum



Our focus

Initial investment

U.S. West

Texas and Gulf Coast

Asia-Pacific

Target sectors

Transportation

Power generation

Hard-to-abate industrials

Focus on low carbon intensity

Building a diverse production portfolio to deliver low carbon intensity products to meet customer needs at the right cost

Hydrogen 101
How it is produced

Grey hydrogen
~10 kg-CO_2/kg-H2

- Steam reformation of natural gas into H_2 and CO_2

Blue hydrogen
< 3 kg-CO_2/kg-H2

- Grey hydrogen plus carbon capture

Green hydrogen
~0 kg-CO_2/kg-H2

- Electrolysis of water into H_2 and oxygen using renewable power

Pink hydrogen
~0 kg-CO_2/kg-H2

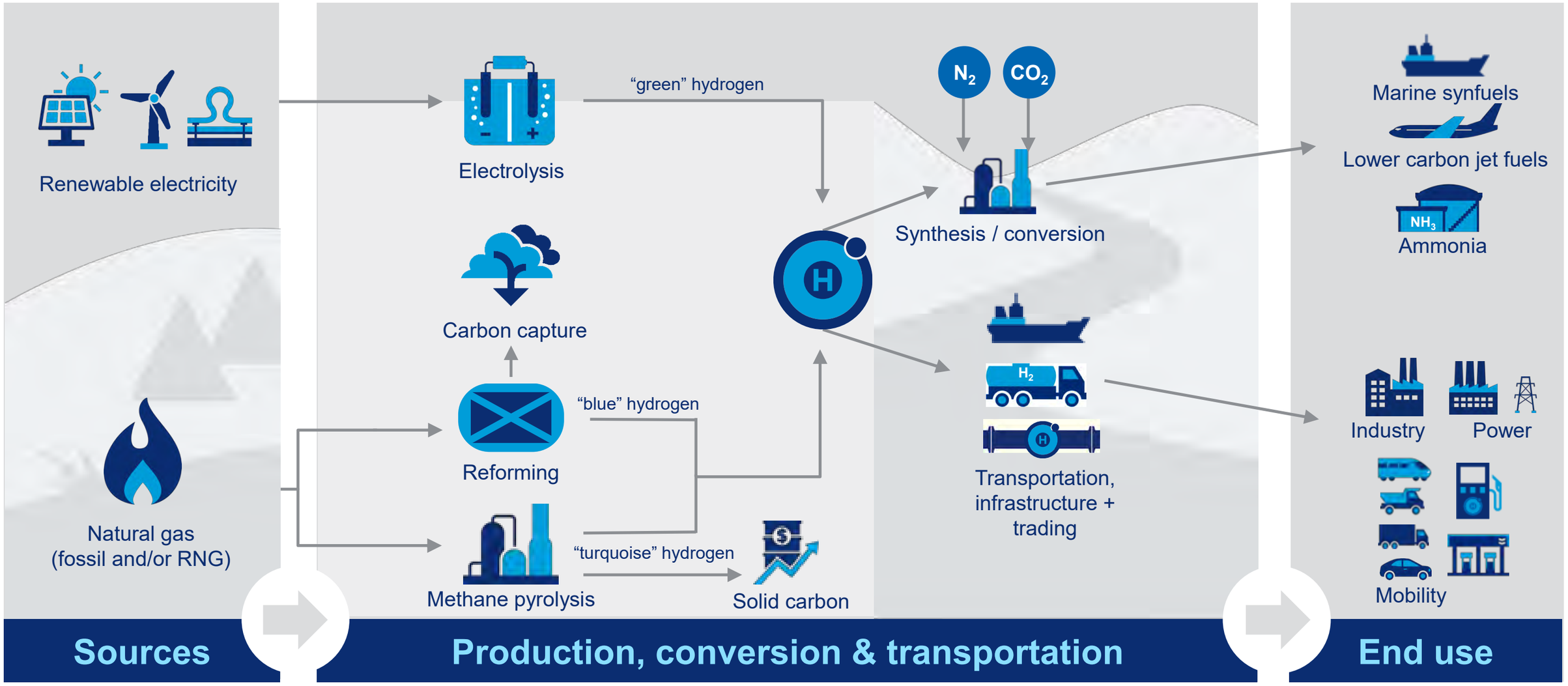
- Electrolysis of water into H_2 using nuclear power

Others
***Turquoise**: Pyrolysis splits methane into H_2 and solid "carbon black"*

CNE focuses on carbon intensity separate from technology

We recognize all hydrogen color options have a role to play in helping reach a lower carbon future

Hydrogen value chain



Enabling value chain development through partnerships and emerging technologies

Chevron is pursuing commercial opportunities through partnerships that demonstrate our desire to develop technology, build infrastructure, connect supply chains and grow the hydrogen market

-- all key components to deliver hydrogen at-scale

Production

Air Liquide
lyondellbasell
RAVEN
AURORA HYDROGEN
PERTAMINA
uniper

Conversion & transportation

LOHC
ANGELICOUSSIS GROUP
Starfire Energy
uniper

End-use

BNSF RAILWAY
TOYOTA
Cummins
CATERPILLAR
Global Centre for MARITIME DECARBONISATION
lyondellbasell
uniper

Call to action to Ports:
Chevron can partner to create H2 solutions

Port ecosystems have a lot of opportunity to lower carbon :

- Cargo handling
- Drayage trucks (mandated by Advanced Clean Fleets)
- Harbor Vessels
- Cold Ironing (Mandated by CARB at berth)?

Source Category	CO2 (tonnes)
OGV, hoteling	82,721
OGV, maneuvering	7957
Harbor vessels	24,194
Recreational vessels	739
Locomotives	41,957
Cargo-handling equipment	44,215
Heavy- duty vehicles	16,824

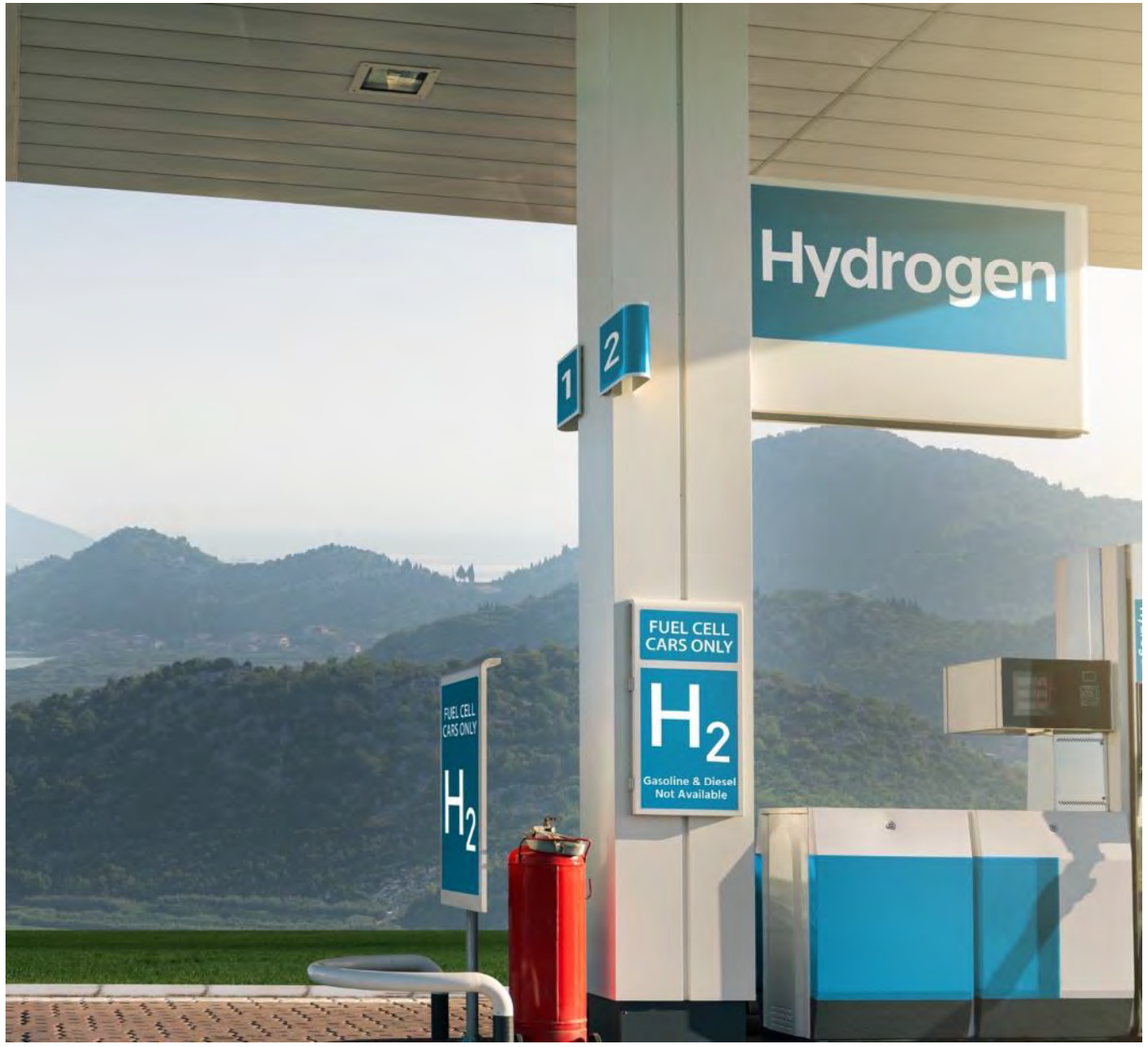
Diesel use and associated emissions at NWSA in 2019
Source: Bureau of Transport Statistics

Closing thoughts..

Hydrogen has a vital role in a lower carbon future

A value chain focus on technology, partnership, and policy will be required to accelerate progress towards scaled solutions

We look forward to continued dialogue and partnership.



Questions and answers

the human Chevron energy company™

Chevron supports well-designed policy

National, regional, and state strategies

National hydrogen strategies help establish targets and momentum to scale solutions

Technology neutral approach

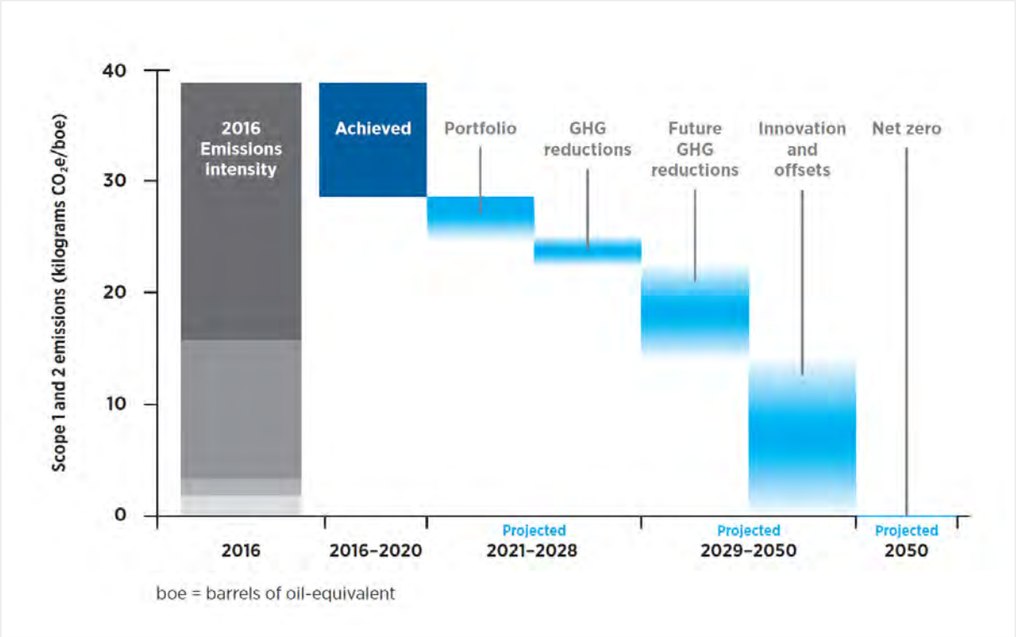
Policy should also recognize that all methods of clean hydrogen production will be necessary to cost-effectively create and scale an industry to enable low carbon intensity hydrogen as a decarbonization solution.

Financial incentives

Government support will be critical to create a low carbon intensity hydrogen market. Policy should be designed to create a market that can be endurable and economic over the long-term

Our ambitions to advance a lower carbon future

Upstream Net Zero 2050 Aspiration*



Grow lower carbon business

	2030 targets
Carbon capture and offsets	25 MMTPA
Hydrogen+	150 MTPA
Renewable natural gas	40,000 MMBTU/D
Renewable diesel and SAF	100,000 B/D

+Partially grey, blue and green

Chevron has set a new GHG intensity target Portfolio Carbon Intensity,**
that represents the carbon intensity across the full value chain associated with bringing products to market, including Scope 3 emissions from the use of sold products, our largest category of Scope 3 emissions

*Upstream emission intensity Scope 1 and 2 in kgCO_2e/BOE. Achieving the Upstream 2050 net zero aspiration will require continued partnership and progress in technology, policy, regulations, and offset markets.
**This target allows Chevron flexibility to grow its traditional upstream and downstream business while remaining increasingly carbon-efficient.

mtpa = thousands of tonnes per annum, mmtpa = millions of tonnes per annum
mmbtu = millions of British thermal units

Hydrogen Safety

safeguards

Hydrogen gas detectors and flame detectors are strategically located in facilities. The detectors are connected to alarms and automatic safe shutdown systems.

Mature safety codes and standards guide the design, engineering, construction, and operation of hydrogen handling equipment and storage facilities, specifically National Fire Protection Agency (NFPA), Compressed Gas Association (CGA), and Society of Automotive Engineers (SAE). Storage system design standards include relief valves and other safety equipment to ensure safe and reliable operation over the lifetime of the equipment.

safety information resources

H_2 Tools – Best Practices
Best Practices Overview — Hydrogen Tools

Compressed Gas Association (CGA)
cganet.com

1. **properties**
   Hydrogen is a gas at room temperature. It is colorless, odorless, tasteless, and undetectable by humans. Hydrogen is 14 times lighter than air and rises at 44 mph. Learn more about Gaseous Hydrogen Properties.
2. **flammability**
   Hydrogen has a wide flammability range from 4% to 74% in air, wider than gasoline and natural gas. Flame has little color and can be almost invisible in sunlight.
3. **radiant heat**
   Hydrogen flames have low radiant heat, significantly less than gasoline and natural gas. This decreases the risk of secondary fires.
4. **containment**
   Hydrogen is the smallest molecule. It is stored at high pressure as a gas, or as a liquid at low temperature.
5. **health**
   Hydrogen is non-toxic and non-poisonous.