David P. Bleicher, MS., MSPH
Certified Industrial Hygienist
8136 Snipe Court
Juneau, Alaska 99801
(907) 321-4931
David@BleicherCIH.com

8 October 2010

CAPT Tim Radtke, CIH
Department of the Interior
Office of Occupational Health and Safety
755 Parfet Street
Suite 364
Lakewood, CO 80215

CAPT Radtke:

I have enclosed a report of exposure assessments for Minerals Management Service, Lake Charles District as part of the DOI Exposure Assessment and Medical Surveillance Inclusion project. In the report you will find two attachments and guidance for reading and interpreting assessment results. One attachment presents the processes, tasks, and agents that were evaluated during the 22-23 April 2010 on-site visit with details of the associated exposure profiles that were developed. The other provides a health risk-based prioritized summary list of process-task-agent groups for control and further information gathering.

An Access database containing complete data and supporting documentation is available for download at www.BleicherCIH.com/DoIeA4TR.html (please note that the page address is case sensitive). This database file will be updated periodically as assessments and profiles are completed for additional facilities.

Please do not hesitate to contact me if you have any questions.

Sincerely,

David P. Bleicher, CIH

Enclosure: MMS, Lake Charles District Occupational Exposure Assessment

Minerals Management Service, Lake Charles District
Occupational Exposure Assessment and Medical Surveillance Inclusion
For
Department of Interior, Safety Council/Office of Health and Safety
On-site: 22-23 April 2010

Exposure assessments have been conducted as a part of the Department of Interior's Exposure Assessment and Medical Surveillance Inclusion Determination initiative. The objective of this effort is to document work processes at DOI facilities, describe the individual tasks associated with those processes, identify hazardous agents that are used or generated during the task, and characterize employee exposure to those agents. The ultimate goal is to identify similarly exposed groups (SEGs) within and between bureaus in order to facilitate exposure management requirements including exposure control, validation of medical surveillance, and prioritized use of limited occupational health resources.

Methods.

Exposure assessments were conducted following the strategy set forth by the American Industrial Hygiene Association's Exposure Assessment Strategies Committee for assessing and managing occupational exposures[1].

An on-site visit to Minerals Management Service, Lake Charles District was conducted on 22-23 April 2010 by David P. Bleicher, CIH to characterized selected processes and collect information needed to develop task-agent exposure profiles. A number of methods were available and used to gather this information. Characterization of processes, tasks, conditions and controls, and agent identification was obtained through observation of work sites and facilities, documentation of procedures, material safety data sheets, and importantly, worker interview. Data useful for estimating exposure was obtained through screening and short term measurement, historical sampling data, mathematical modeling, and the scientific literature.

Two reports are provided for this facility (Attachments A and B). One presents the processes, tasks, and agents that were evaluated during the site visit along with details of the associated exposure profile. The other is a health risk-based prioritized summary list of process-task-agent groups for control and further information gathering.

Task-Agent Exposure Profile Detail Report.

Task-agent exposure profiles are based on observation and employee description of processes. Due to the nature of many DOI missions, processes and tasks can be highly variable—task duration, frequency, and operating conditions can differ from one iteration to another. Therefore, process and task characterizations were frequently, and necessarily, reported as "typical" with a range of conditions described. Judgments about worker exposure are based on the tasks as presented in this report. When actual processes or the conditions under which they are carried out differ from those recorded, the exposure profile and classification should not be generalized without appropriate consideration of variables.

Reading the Report.

[1] Bullock, Wm.H. and J.S.Ignacio, Eds. 2006. A Strategy for Assessing and Managing Occupational Exposures, 3rd. AIHA Press, Fairfax.

The Task-Agent Exposure Profile Detail Report is arranged in hierarchical fashion by Division or Project, Process, Task, and Agent. Process entries include a brief description of the process and when appropriate, unique operating conditions. Task entries include a brief characterization of the task, a description of any controls in place, the duration and frequency of occurrence, and appropriate recommendations. It should be noted that many task characterizations and agent exposure profiles will immediately suggest rather obvious recommendations. Some of these have been included in the report. However, in many cases it would not be appropriate to make definitive control recommendations without more careful consideration of control strategies and factors that would affect their efficacy (e.g. design, economic, and cultural factors) which is beyond the scope of the exposure assessment project.

Exposure Profile. Information used to develop the exposure profile is found for each Agent under a Task. It is important to understand that the exposure profile accounts for engineered and administrative controls and reflects potential worker exposure in the absence of personal protective equipment such as respirators.

- Exposure Category: Exposures have been categorized as Acceptable, Unacceptable, or Uncertain.
- OEL: The Occupational Exposure Limit or OEL is the threshold value used as a standard for comparison with the exposure estimate. OELs may describe full shift or short-term acceptable or unacceptable exposure limits.
- Exposure Rating & Exposure Estimate: When possible the Exposure Rating is based on quantitative data which yields an Exposure Estimate. In practice, very little quantitative information is available to support a judgment. In the absence of strong quantitative data, it is often practical and reasonable to categorized an exposure as acceptable, unacceptable, or uncertain based on qualitative or semi-quantitative information. However, in these cases it is difficult to assign intermediate exposure ratings as a fraction of the OEL, therefore an exposure rating of 4 is assigned to clearly unacceptable exposures and a rating of 1 for those that are clearly acceptable.
- Health Effects Rating: The Health Effects Rating reflects both the severity and permanence of the health impacts of an unacceptable exposure.
- Uncertainty Rating: The Uncertainty Rating provides an indicator of the level of certainty associated with the exposure profile. For example; exposure estimates based on definitive monitoring studies would be highly certain while profiles based on screening measurement, mathematical modeling, data from similar activities, or qualitative judgment may add degrees of uncertainty. Other factors that may affect the industrial hygienist's assignment of an uncertainty rating are inadequate understanding of health impacts by scientific community and excessive generalization of the task activity or conditions during the characterization process.
- Basis & Discussion: The Basis for the estimated exposure, its assignment to an exposure category, and the factors affecting certainty is given. A brief Discussion of available information and factors leading to judgments about the exposure profile is also provided.
- Risk/Control Priority: A Risk/Control Priority is calculated as the product of the Health Effects Rating and the Exposure Rating. Ratings range from 0 for the lowest risk exposures to a high of 16.
- FIG Priority: When uncertainty exists in the exposure profile, further information gathering may be required to resolve it. FIG Priority is calculated as the product of the Risk/Control Priority and the Uncertainty Rating. Both the Risk/Control Priority and the FIG Priority values may be used to more efficiently direct resources to control exposures and resolve exposure questions. FIG priority ratings range from a low of 0 to a high of 32.

Medical Surveillance. The exposure profile provides validation of, or indicates justification for, medical surveillance programs. In the report, medical surveillance is Justifiable when the exposure category is unacceptable or uncertain. Note that justifiable means simply that an unacceptable (or uncertain) exposure is identified. It does not suggest that medical surveillance is required, needed or even useful. On the other hand, some exposures are designated as Triggered or Critical Exposures. For unacceptable or uncertain exposure to some agents, medical surveillance may be triggered or required by regulation. A critical exposure refers to unacceptable or uncertain exposure to an agent which may pose very severe and irreversible health effects if not controlled. Examples include potent human carcinogens.

David P. Bleicher, CIH
8 October 2010

Attachment A: Task-Agent Exposure Profile Detail Report
Attachment B: Health Risk and Further Information Gathering Priorities Report

Task-Agent Exposure Profile Detail Report

MMS, Lake Charles District

Lake Charles District

Process: *Drilling Inspection*

Tasks associated with drilling inspection were not individually characterized. Daily drilling fluids report for a single facility and day, and associated MSDSs were provided as indicators of materials of concern. Products reported: calcium chloride, Carbo-Mul HT, Carbo-Tec, diesel, LC-Lube, and Check-Loss Plus.

Operating Conditions:

Task: Drilling Inspection General

Frequency: Daily

Duration:

Tasks associated with drilling inspection were not individually characterized. Daily drilling fluids report for a single facility and day and associated MSDSs were provided as indicators of materials of concern. Products reported: calcium chloride, Carbo-Mul HT, Carbo-Tec, diesel, LC-Lube, and Check-Loss Plus.

Controls:

Recommendation:

AGENT Calcium chloride

OEL:

Exposure Estimate:

Health Effects Rating: 0 Reversible health effects of little concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 0

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Inspector exposure to agent is not expected to result in health effects of concern. Use not reported in daily drilling fluids report. Inspector contact is incidental.

Medical Surveillance

Justifiable no

Triggered or Critical Exposure no

Reference:

AGENT Cellulose

OEL: 10 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Product is Check-Loss Plus. OEL is TLV which is based on mechanical irritation to eyes and mucous membranes. Inspector observation of task involving transfer and use of this agent are not expected to result in exposure greater than the OEL.

Medical Surveillance

Justifiable no

Triggered or Critical Exposure no

Reference:

AGENT Dipropylene glycol methyl ether

OEL: 100 ppm

Exposure Estimate: ppm

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 1

Discussion: OEL is TLV. Product is Carbo-Mul which used as an emulsifier and contains 20-40% kerosene and 11% diprpylene glycol methyl ether. Agent has skin notation (ACGIH). Direct contact with product is not anticipated. Inhalation exposure not expected to exceed OEL.

Medical Surveillance

Justifiable no

Triggered or Critical Exposure no

Reference:

AGENT Graphite, synthetic

OEL: 2 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Product is LC-Lube Fine. OEL is TLV which is based on risk of pneumoconiosis as a result of inhalation exposure. Exposure is not expected to exceed the OEL during this task.

Medical Surveillance

Justifiable no

Triggered or Critical Exposure no

Reference:

AGENT Kerosene

OEL: 200 ppm

Exposure Estimate: ppm

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 1

Discussion: OEL is TLV. Product is Carbo-Mul which used as an emulsifier and contains 20-40% kerosene and 11% diprpylene glycol methyl ether. Agent has skin notation (ACGIH). Direct contact with product is not anticipated. Inhalation exposure not expected to exceed OEL.

Medical Surveillance

Justifiable no

Triggered or Critical Exposure no

Reference:

AGENT Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (>10% OEL; 95th %tile > OEL)

Exposure Category: Unacceptable

Uncertainty: 0 Certain

Risk/Control Priority: 12

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: OEL is TLV. Full shift assessment of inspector exposure to hazardous noise during several helicopter flights and inspection tasks was conducted in 2007 for New Orleans Region operations. Result, reported as PEL-TWA, ranged between 86.5 and 96.3 dBA (criterion 90 dBA, exchange rate 5). At these measured levels, flight line and on-board exposure to hazardous noise is expected to exceed the OEL, TLV (criterion 85 dBA, exchange rate 3).

Medical Surveillance

Justifiable: yes

Triggered or Critical Exposure: yes

Reference: 29 CFR 1010.95

AGENT Oil Mist

OEL: 5 mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 1

Discussion: Product is Carbo-Tec which is straight run middle petroleum distilates. Primary risk is exposure to oil mist. OEL is PEL. Other applicable OEL is REL-STEL (10 mg/m3).

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

Process: *H2S Operations*

Inspections of facilities where high levels of hydrogen sulfide occur are similar to other inspections with the exception that the orientation is more extensive in order to identify hazards and procedures associated with H2S.

Operating Conditions:

Task: H2S Operations

Frequency: Monthly

Duration: 4 - 8 hours

Within the Lake Charles region, "H2S Operations" occur annually for inspection at production facilities and monthly for drilling facilities.

Controls:

Hydrogen sulfide-specific training and training in the use of breathing apparatus is conducted.

Recommendation:

AGENT Hydrogen sulfide

OEL: 15 ppm

Exposure Estimate: ppm

Health Effects Rating: 4 Life threatening or disabling injury or illness

Exposure Rating: 4 (>10% OEL; 95th %tile > OEL)

Exposure Category: Uncertain

Uncertainty: 1 Uncertain

Risk/Control Priority: 16

Basis: Qualitative Judgement

FIG Priority: 16

Discussion: OELs are TLV (15 ppm) and REL-C (10 ppm). Exposure data were not available for this task. Exposure is expected to be highly variable.

Medical Surveillance

Justifiable yes

Triggered or Critical Exposure no

Reference:

Process: *Helicopter Travel*

Frequent travel by helicopter to offshore drilling and production facilities is required.

Operating Conditions:

Task: Travel in Helicopter

Frequency: Daily

Duration: 1 - 2 hours

Frequent travel by helicopter to offshore drilling and production facilities is required. A typical round trip requires approximately 2 hours of travel time. The closest facility is a 20 minute flight.

Controls:

Flight helmets are worn.

Recommendation:

AGENT Heat

OEL:

Exposure Estimate:

Health Effects Rating: 4 Life threatening or disabling injury or illness

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 0 Certain

Risk/Control Priority: 4

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: Extreme high temperatures within helicopter cabs were reported. Exposure of 15-20 minutes occurs on start-up while the aircraft's air conditioning system moderates temperature. Short duration exposure during this task is preceded and followed by recovery time in air conditioned spaces. Metabolic heat generation is low. Other tasks conducted during the work shift that may present additional heat stress are not considered in the exposure categorization.

Medical Surveillance

Justifiable no

Triggered or Critical Exposure no

Reference:

AGENT Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (>10% OEL; 95th %tile > OEL)

Exposure Category: Unacceptable

Uncertainty: 0 Certain

Risk/Control Priority: 12

Basis: Qualitative Judgement

FIG Priority: 0

Discussion: OEL is TLV. An in-depth assessment of inspector exposure to hazardous noise during several helicopter flights and inspection tasks was conducted in 2007 for New Orleans Region operations. Result, reported as PEL-TWA, ranged between 86.5 and 96.3 dBA (criterion 90 dBA, exchange rate 5). At these measured levels, flight line and on-board exposure to hazardous noise is expected to exceed the OEL (TLV, criterion 85 dBA, exchange rate 3).

Medical Surveillance

Justifiable: yes

Triggered or Critical Exposure: yes

Reference: 29 CFR 1010.95

Process: *Production Inspection*

Off-shore oil production facilities are inspected. Time spent at a facility is dependant on its size, and could take from 1 1/2 hour for the smallest to 3 days for largest. A typical or average sized facility would require about 1 day to complete including travel time.

Operating Conditions:

Task: Check Pressure Active Control Sensors

Frequency: Daily

Duration: 1 - 4 hours

Pressure active control "pilots" (pressure sensors) are checked. Task requires that facility personnel bleed gas and vapor from a block and bleed system. Task requires about 40 % of the physical inspection time. Inspector role is limited to observation and recording.

Controls:

Recommendation:

AGENT Unknown

OEL:

Exposure Estimate:

Health Effects Rating: 4 Life threatening or disabling injury or illness

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Uncertain

Uncertainty: 2 Highly Uncertain

Risk/Control Priority: 4

Basis: Qualitative Judgement

FIG Priority: 8

Discussion: Vapor and gas release was reported as natural gas and was described as minimal by inspectors.

Medical Surveillance

Justifiable: yes

Triggered or Critical Exposure: no

Reference:

Task: Checking "Levels"

Frequency: Daily

Duration: 1 - 4 hours

Task requires valves to be opened allowing vapor and gas to be released. Material released my be oil components, additives, or natural gas. Task is typically repeated 15-20 times per facility inspection. Task requires about 50% of the physical inspection time. Inspector role is limited to observation and recording.

Controls:

Recommendation:

AGENT Unknown

OEL: ppm

Exposure Estimate: ppm

Health Effects Rating: 4 Life threatening or disabling injury or illness

Exposure Rating: 4 (>10% OEL; 95th %tile > OEL)

Exposure Category: Uncertain

Uncertainty: 1 Uncertain

Risk/Control Priority: 16

Basis: Qualitative Judgement

FIG Priority: 16

Discussion: Agents may include volatile components of the production product, production additives, or natural gas. Data were not available for this task. Task may be conducted in enclosed spaces which would increase exposure risk. Multiple agents with similar mode of action and target organs may be present.

Medical Surveillance

Justifiable yes

Triggered or Critical Exposure no

Reference:

Task: Inspection After Emergency Shut Down System

Frequency: Daily

Duration: 1/2 - 1 hour

Facility workers activate the emergency shutdown system so that inspection can be conducted. As a result, there is a large release of gas and vapor which may include VOCs, natural gas, and H2S. Approximately 10% of physical inspection time is spent on this task.

Controls:

Recommendation:

AGENT Hydrogen sulfide

OEL: 10 ppm

Exposure Estimate: ppm

Health Effects Rating: 4 Life threatening or disabling injury or illness

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Uncertain

Uncertainty: 1 Uncertain

Risk/Control Priority: 4

Basis: Qualitative Judgement

FIG Priority: 4

Discussion: OEL is REL-C. Work is conducted on deck and is of short duration. Agent exposure concentrations are expected to be highly variable.

Medical Surveillance

Justifiable yes

Triggered or Critical Exposure no

Reference:

AGENT Unknown

OEL:

Exposure Estimate:

Health Effects Rating: 4 Life threatening or disabling injury or illness

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Uncertain

Uncertainty: 1 Uncertain

Risk/Control Priority: 4

Basis: Qualitative Judgement

FIG Priority: 4

Discussion: Agents may include volatile components of the production product or natural gas. Exposure data were not available for this task. Multiple agents with similar mode of action and target organs may be present. Task is short duration and is conducted on deck.

Medical Surveillance

Justifiable yes

Triggered or Critical Exposure no

Reference:

Task: Orientation and Walkaround

Frequency: Daily

Duration: 1/2 - 1 hour

An initial orientation walk around of the facility is conducted with the operator to identify hazards and hazardous areas, and identify escape routes. Hazards and hazardous activities may include on-going welding, drilling operations, NORM, H2S (safe briefing areas are identified during this task), and well plug and abandonment (P&A).

Controls:

Recommendation:

AGENT Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (>10% OEL; 95th %tile > OEL)

Exposure Category: Unacceptable

Uncertainty: 0 Certain

Risk/Control Priority: 12

Basis: Existing Quantitative Data

FIG Priority: 0

Discussion: OEL is TLV. Full shift assessment of inspector exposure to hazardous noise during several helicopter flights and inspection tasks was conducted in 2007 for New Orleans Region operations. Result, reported as PEL-TWA, ranged between 86.5 and 96.3 dBA (criterion 90 dBA, exchange rate 5). At these measured levels, flight line and on-board exposure to hazardous noise is expected to exceed the OEL (TLV (criterion 85 dBA, exchange rate 3).

Medical Surveillance

Justifiable: yes

Triggered or Critical Exposure: yes

Reference: 29 CFR 1010.95

AGENT Unknown

OEL:

Exposure Estimate:

Health Effects Rating: 4 Life threatening or disabling injury or illness

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Uncertain

Uncertainty: 1 Uncertain

Risk/Control Priority: 4

Basis: Qualitative Judgement

FIG Priority: 4

Discussion: It was reported that agents that inspectors may be exposed to during this task include VOCs, welding fume, H2S, NORM, and production additives. Two additives reported are methanol and a paraffin inhibitor, both of which were reportedly used in large quantities. Exposure data were not available for this task.

Medical Surveillance

Justifiable: yes

Triggered or Critical Exposure: no

Reference:

Process: *Vessel Transport*

Inspectors may travel from main to satellite facilities by boat.

Operating Conditions:

Task: Travel in Vessel

Frequency: Bi-Monthly

Duration: 1 - 4 hours

Inspectors may travel from main to satellite facilities on large supply vessels. Inspectors report that they typically ride on the fan tail. This mode of transportation is required to access approximately 10-15% of rigs and may require 2 hours on the boat during a shift. Inspectors reported concern for exposure to diesel exhaust.

Controls:

Recommendation:

AGENT Diesel engine emissions

OEL: mg/m3

Exposure Estimate: mg/m3

Health Effects Rating: 2 Severe, reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 2

Basis: Qualitative Judgement

FIG Priority: 2

Discussion: Exposure to diesel exhaust was reported to be a concern during this task. Diesel engine exhaust contains several hazardous agents. Those of acute exposure concern during this task are NO2, NO, CO, and SO2. Exposure to particulate polycyclic aromatic hydrocarbons, coal tar pitch volatiles present long term exposure hazard. Exposure is expected to be highly variable and dependant on apparent wind direction and eddying of air flow around the vessel.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

AGENT Nitrogen dioxide

OEL: 5 ppm

Exposure Estimate: ppm

Health Effects Rating: 1 Reversible health effects of concern

Exposure Rating: 1 (<10% OEL; 95th %tile <0.1 OEL)

Exposure Category: Acceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 1

Basis: Qualitative Judgement

FIG Priority: 1

Discussion: OEL is TLV-STEL. Another applicable OEL is the REL-STEL (1 ppm). Agent is a strong irritant primarily affecting the eyes and upper respiratory system during this task. Exposure is expected to be highly variable and dependant on apparent wind direction and eddying of air flow around the vessel.

Medical Surveillance

Justifiable: no

Triggered or Critical Exposure: no

Reference:

AGENT Noise

OEL: 85 dBA

Exposure Estimate: dBA

Health Effects Rating: 3 Irreversible health effects of concern

Exposure Rating: 4 (>10% OEL; 95th %tile > OEL)

Exposure Category: Unacceptable

Uncertainty: 1 Uncertain

Risk/Control Priority: 12

Basis: Available Literature

FIG Priority: 12

Discussion: OEL is TLV. In combination with other transportation and inspection tasks, OEL is expected to be exceeded. Sound level and dosimetry data were not available for this task. However, full shift assessment of inspector exposure to hazardous noise during several helicopter flights and inspection tasks was conducted in 2007 for New Orleans Region operations. Results, reported as PEL-TWA, ranged between 86.5 and 96.3 dBA (criterion 90 dBA, exchange rate 5). At these measured levels, flight line and on-board exposure to hazardous noise is expected to exceed the OEL (TLV, criterion 85 dBA, exchange rate 3).

Medical Surveillance

Justifiable: yes

Triggered or Critical Exposure: yes

Reference: 29 CFR 1010.95

Health Risk and Further Information Gathering Priorities

MMS, Lake Charles District

Division, Shop, Project	Process	Task	Agent	Exposure Catagory	Justified Medical Surveillance	Triggered Surveillance	Health Risk Priority	FIG Priority
Lake Charles District	H2S Operations	H2S Operations	Hydrogen sulfide	Uncertain	yes	no	16	16
Lake Charles District	Production Inspection	Checking "Levels"	Unknown	Uncertain	yes	no	16	16
Lake Charles District	Vessel Transport	Travel in Vessel	Noise	Unacceptable	yes	yes	12	12
Lake Charles District	Production Inspection	Orientation and Walkaround	Noise	Unacceptable	yes	yes	12	0
Lake Charles District	Helicopter Travel	Travel in Helicopter	Noise	Unacceptable	yes	yes	12	0
Lake Charles District	Drilling Inspection	Drilling Inspection General	Noise	Unacceptable	yes	yes	12	0
Lake Charles District	Production Inspection	Check Pressure Active Control Sensors	Unknown	Uncertain	yes	no	4	8
Lake Charles District	Production Inspection	Inspection After Emergency Shut Down System	Unknown	Uncertain	yes	no	4	4
Lake Charles District	Production Inspection	Inspection After Emergency Shut Down System	Hydrogen sulfide	Uncertain	yes	no	4	4
Lake Charles District	Production Inspection	Orientation and Walkaround	Unknown	Uncertain	yes	no	4	4
Lake Charles District	Helicopter Travel	Travel in Helicopter	Heat	Acceptable	no	no	4	0
Lake Charles District	Vessel Transport	Travel in Vessel	Diesel engine emissions	Acceptable	no	no	2	2
Lake Charles District	Drilling Inspection	Drilling Inspection General	Graphite, synthetic	Acceptable	no	no	2	0
Lake Charles District	Drilling Inspection	Drilling Inspection General	Oil Mist	Acceptable	no	no	1	1
Lake Charles District	Drilling Inspection	Drilling Inspection General	Kerosene	Acceptable	no	no	1	1
Lake Charles District	Vessel Transport	Travel in Vessel	Nitrogen dioxide	Acceptable	no	no	1	1
Lake Charles District	Drilling Inspection	Drilling Inspection General	Dipropylene glycol methyl ether	Acceptable	no	no	1	1
Lake Charles District	Drilling Inspection	Drilling Inspection General	Cellulose	Acceptable	no	no	1	0
Lake Charles District	Drilling Inspection	Drilling Inspection General	Calcium chloride	Acceptable	no	no	0	0