
Mining Program Score Sheet

Directions: For each recommendation listed below, please circle a score for the scoring element and provide a brief justification for the assignment of that score. The scoring criteria are provided below. The work may provide scores in .5 increments where they deem appropriate. If the group chooses to do that, please put a .5 next to the corresponding number and circle that number.

Scoring Criteria:

Achievement (Activities): Did the program fully respond to the recommendation? Were all suggested actions completed as described in the National Academies recommendation? (Did the program develop and implement a responsive set of activities that would lead to the achievement of the MSHRAC-approved actions for the recommendation?)

5: The program's activities completely fulfilled the recommendation; no new activities are required (beyond maintaining any current activities as necessary).

4

3: The program has completed some activities outlines in their implementation plan related to this recommendation and additional activities are necessary to fulfill the recommendation.

2

1: The program has not completed any activities outlined in their implementation plan related to this recommendation.

Sustainability: Does the program have the inputs in place (resources, plans, partnerships, etc.) to maintain the activities and/or continue to build upon their progress, if applicable?

5: The program is very likely to effectively and efficiently use identified inputs to maintain the activities and/or continue building upon their progress as needed.

4

3: The program is somewhat likely to effectively and efficiently use identified outputs to maintain the activities and/or continue building upon their progress as needed.

2

1: The program will not effectively and efficiently use identified inputs to maintain the activities and/or continue building upon their progress as needed.

Impact: Did the activities result in a sufficient impact? If it is appropriate to maintain the activities outlined, is there potential for continued long-term impact? (Did the activities result in achievement of the MSHRAC-approved actions to address the National Academies recommendation?)

5: Activities led to outputs and intermediate outcomes that have made major contributions to advancing program functioning, developing new partnerships and/or improving worker safety and health.

4

3: Activities led to outputs and intermediate outcomes that have made little contribution to advancing program functioning, developing new partnerships and/or improving worker safety and health.

2

1: Activities led to outputs and intermediate outcomes that have made no contribution to advancing program functioning, developing new partnerships and/or improving worker safety and health.

Recommendations Completed:

Recommendation	MSHRAC-Approve Actions
Increase interaction with other NIOSH programs	OMSHR will seek the assistance of other NIOSH divisions especially in medical, industrial hygiene, and surveillance areas
	Challenge MSHRAC with more substantial assignments

Achievement: 1 2 3 4 5

Brief Justification: Numerous examples were provided of collaborative activities with 7/8 other NIOSH programs. Examples include work with DRDS on collaborative exposure assessment and increased focus on Metal/Nonmetal mines; with HELD on DPM and nanoparticle-related lung disease; with DART on transfer of control practices and technologies to limit silica exposure during asphalt extraction in road milling; with NPPTL on SCSR certification and SCBA refill stations; with DSR on equipment design and evaluation. OMSHR leadership reflected that there is substantial interest among various programs in continued enhanced collaboration, along with mutual respect among programs. These efforts should continue to be shared with and reviewed by MSHRAC at future meetings. The committee would welcome more opportunities for input into future MSHRAC meeting agendas.

Sustainability: 1 2 3 4 5

Brief Justification: OMSHR leadership indicates that “this is a way of doing business now”; project-specific collaborations are encouraged and occurring routinely. When different programs collaborate, they co-publish. Three priority goals have been established by OMSHR this year for research consideration by all other divisions: reduced exposure to respirable coal mine dust; reduced hazards from coal mine explosions; and reduced hazards from catastrophic ground collapses in underground mines. OMSHR leadership noted that collaborations are resource limited and priority driven; they are not limited to mining but also include oil and gas and construction industries.

Impact: 1 2 3 4 5

Brief Justification: High impact and broad effects on miners’ health and safety. Numerous examples discussed: new surveillance program for silicosis in western M/NM miners, design of new technologies for next generation of SCSRs; multiple technology transfers.

Recommendation	MSHRAC-Approve Actions
Enhance interaction with MSHA where research needs are closely aligned with MSHA’s legislative and shorter-term requirements	OMSHR will establish an MOU with MSHA to clarify the working relationship between the two agencies
	OMSHR will encourage MSHA to share a longer-term view of its priorities for future regulations allowing adequate time for completion of research to better inform their regulatory decisions
	OMSHR will strengthen its collaborations with other federal agencies

Achievement: 1 2 3 4 5

Brief Justification: MOU has been established (2009) to clarify the working relationship with MSHA. MSHA has been urged to share its legislative agenda so that OMSHR can enhance support for MSHA informational needs. There was discussion of the “natural tension” created by differing missions; that is, NIOSH does research and publication, MSHA enforces the Act. OMSHR leadership reflected that the quality of the working relationship with MSHA has “never been better” and that there is a great deal of mutual respect between the agencies. Many fruitful collaborations and interactions between MSHA and other NIOSH programs have been implemented. Examples include efforts on refuge chambers, dust scrubbers, respirable dust, sharing of programmatic priorities. OMSHR has also strengthened collaborations with other federal agencies (DoD, NASA, NRL, DOE) through an Interagency Working Group.

Sustainability: 1 2 3 4 5

Brief Justification: Achievements are contingent on the leadership of each organization, their understanding of the value of collaboration, with sustainability driven in part by benefits to each. Regular communication and briefings (currently, every two weeks at an executive leadership level between OMSHR and OSH) are essential and should probably be standardized and adopted by future administrations to ensure sustained and productive interagency working relationships.

Impact: 1 2 3 4 5

Brief Justification: Very high impact on many different projects and many different areas. One committee member suggested that impact would be enhanced if MSHA directed mine operators with health and safety issues to OMSHR for assistance in addressing/resolving problems.

Recommendation	MSHRAC-Approve Actions
Partner more broadly so that most guidelines and processes are relevant to the entire mining community	OMSHR will establish a process and review the in-mine tasks of current projects to assess their relevance to the mining community, taking action as appropriate
	OMSHR will continue to emphasize this issue in training of project managers and principal investigators
	OMSHR will continue to rely heavily on traditional labor and industry partners to help ensure its work will serve the industry-at-large

Achievement: 1 2 3 4 5

Brief Justification: OMSHR has established a high standard, leadership-level approach to project review to ensure that the science is sound, reliable and relevant. They have done an excellent job of addressing stakeholder issues, particularly via partnering; this is apparent in all MSHRAC presentations. Leadership attention based on strategic planning has enhanced identification of the mining sector served, impact on mining practices within sectors, and identification of potential mining program gaps. New dissemination processes have been implemented. Additional efforts have focused on enhanced researcher engagement, including review by OMSHR statisticians of project proposals to ensure adequate design and sampling strategies, with feedback to address research design shortcomings. Guidelines for peer and literature review and protocol design for researchers have been implemented and clarified. OMSHR is clearly committed to building, sustaining and expanding essential partnerships to support its mission.

Sustainability: 1 2 3 4 5

Brief Justification: These highly valued partnerships have become standard practice within OMSHR and are now just part of the culture. Current OMSHR leadership has played a vital role in assuring that, through partnerships, guidelines and processes remain relevant to the mining community.

Impact: 1 2 3 4 5

Brief Justification: OMSHR is viewed by non-governmental organizations as providing benefits through collaboration, having engaged numerous partners to advance the mining health and safety agenda. These partnerships have improved the quality and applicability of their research, with sustained high impact. Numerous examples include partnerships with the National Stone, Sand and Gravel Association to discuss research needs; SIMTARS in Queensland, Australia to enhance gas monitoring in US coal industry; multiple stakeholders for workshops on hearing loss prevention; Vale Mining for evaluation of diesel emission controls effectiveness; multiple technical partners and stakeholders for improved oxygen supply technologies for miners and mine rescuers; and collaborations with over 100 mining organizations during the past year, including over 50 underground coal mines included in studies.

Recommendation	MSHRAC-Approve Actions
Develop more robust and better methods of monitoring in-situ safety conditions in mines	OMSHR will continue research on monitoring of in situ safety conditions for surface and underground mines
	OMSHR is likely to expand work in this area under the mandate of the MINER Act to increase efforts in the area of safety technologies

Achievement: 1 2 3 4 5

Brief Justification: This area is considered a core strength of OMSHR, which has engaged both intramural and extramural investigators and groups to develop several technological breakthroughs such as detecting hazardous gases (methane, CO, NO2), addressing battery hazards, work on fault-reactivation/ground control, and dust controls (including float coal dust dispersion and rock dust adequacy).

Sustainability: 1 2 3 4 5

Brief Justification: Efforts can be sustained via continued funding and active recruitment of expertise to OMSHR. Efforts are directly aligned to MINER Act mandate.

Impact: 1 2 3 4 5

Brief Justification: This work directly affects and improves the health and safety of miners. Movement of new technological advances to the active mining environment in shorter time frames will help prevent mine injuries and illnesses. Numerous examples include the PDM for real time cumulative dust exposure monitoring; coal dust explosibility monitoring; real time respirable quartz dust monitoring efforts; and use of gas monitors for self-escape.

Recommendation	MSHRAC-Approve Actions
Include how small business worker populations will be served	OMSHR will revisit its Strategic Plan and this area has been identified as one of the challenges to be addressed
	OMSHR will develop an action plan for this area separately and will include discussions with MSHA's Technical Assistance Program to identify small mines that have special safety and health problems and needs

Achievement: 1 2 3 4 5

Brief Justification: OSMHR has set out a course/strategic approach to address the small mine operator's need for adopting more effective safety and health management systems. OMSHR has a good plan to tackle this very challenging area, including new web-based and social media tools for communication and dissemination to small mining operators and attention to low cost solutions (eg, mobile devices, virtual reality training methods). MSHRAC members felt that OMSHR is on the right course and looks forward to seeing how this unfolds and impacts the mining sector. Inclusion of worker's compensation carriers who have a financial interest in insured mining company's health and safety performance was felt to be a creative approach worth further exploration.

Sustainability: 1 2 3 4 5

Brief Justification: If this area remains a priority and receives continued funding and attention, the activity will be sustainable. Focus on the use of low cost, accessible technology to reach small mine operators is also viewed as a means to sustain this effort.

Impact: 1 2 3 4 5

Brief Justification: Plans have been formulated and efforts are underway. Peer-reviewed articles on cost-benefit of safety and health have been published; pilot workshops have been held; and work to identify target mine operators has been completed.

Recommendation	MSHRAC-Approve Actions
The mining programs should be prepared to provide recommendations to safeguard health and safety as best strategies for mining deep resources are developed. Environmental and occupational hazards of deeper mines should be evaluated.	OMSHR will conduct a project to examine research issues associated with mining at greater depths
	OMSHR will consider other related needs in its strategic planning process

Achievement: 1 2 3 4 5

Brief Justification: This area has been included in strategic plan and linked to intermediate goals. OMSHR has addressed a number of research areas that affect deep mines including ground control, ventilations, temperature control, pillar performance, the fault-slip project and rib stability in coal mines. Two extramural projects related to high stress and deeper mining conditions (focused mainly on dynamic failures in underground coal mines) were completed. Committee suggested that compilation of best practices from other countries with deep mines (eg, hot environment management approaches from South Africa) would be helpful.

Sustainability: 1 2 3 4 5

Brief Justification: Deep mine studies are now part of OMSHR's strategic plan and will be examined during the planning cycle. Collaboration with mine in Canada is leading to novel research in deep mining.

Impact: 1 2 3 4 5

Brief Justification: OMSHR has completed a major project on dynamic failure prevention in deep coal mines which provided the coal industry with tools to better monitor pillar stability. Much of OMSHR's work in this area has addressed ground control and monitoring seismic movement. OMSHR has partnered with several universities to address issues that are specific and relevant to deep mines.