Environmental Field Reviews: Supporting Monitoring Obligations and the Environmental Impact Assessment Feedback Process

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***Summary***

This paper describes an environmental field review program that evaluates active projects and field camps to identify potential issues, areas for improvement, and mitigation alternatives. The environmental field reviews also support follow-up evaluation of the environmental impact assessment (EIA) conducted prior to implementing a project or field camp to ensure predicted impacts were accurately identified and if mitigations are effective. The objective of this paper is to illustrate the complete process for conducting environmental field reviews – from initial planning to implementation of follow-up actions.

***Introduction***

The United States Antarctic Program (USAP) routinely conducts field reviews of active projects and field camps to identify potential issues, areas for improvement, and mitigation alternatives. A key benefit of these reviews is the opportunity to assess if the EIA document prepared prior to implementing a project has adequately identified potential impacts and if mitigations are effective in reducing environmental impacts.

Routine environmental field reviews support the monitoring obligations identified in Article 3 of the Protocol on Environmental Protection to the Antarctic Treaty: *“regular and effective monitoring shall take place to allow assessment of the impacts of ongoing activities, including the verification of predicted impacts”* (Article 3.2[d]) and *“to facilitate early detection of the possible unforeseen effects”* (Article 3.2[e]).Additionally, field reviews support the “EIA feedback process” identified in Resolution 1 (2016): *Guidelines for Environmental Impact Assessment in Antarctica* to address *“a need to verify the predicted impacts of the activity and assess the effectiveness of mitigation measures, including to consider whether it is necessary to make any changes to the activity or prepare a new EIA”* (Section 5).

The objective of this paper is to illustrate the complete process currently implemented by USAP for conducting environmental field reviews. This paper describes how projects and field camps are selected for review, how field reviews are performed, and what types of key findings and follow-up actions are typically identified. Over the past five Antarctic summers, a total of 34 environmental field reviews were completed by USAP personnel.

***Selection and Prioritization of Projects and Field Camps for Review***

Prior to the field season, selection criteria are used to identify which projects and field camps would be considered for environmental field reviews. If an active project or field camp has aspects that match one or more of the following selection criteria, the project or field camp is further considered as a candidate for an environmental field review:

* A project or field camp is new;
* New construction or operations are planned to occur as part of an existing project or field camp;
* New technology is being implemented as part of an existing project or field camp;
* A principal investigator (PI) is new to USAP;
* A field camp manager is new to the position;
* A project or field camp has a history of challenges, particularly those related to environmental requirements;
* A project or field camp includes activities that are located within or near a sensitive area such as an Antarctic Specially Managed Area (ASMA) or Antarctic Specially Protected Area (ASPA);
* The scope of a project includes planned releases to the environment;
* The project or field camp involves storage and use of large quantities of hazardous materials such as fuel, drilling fluid, or laboratory chemicals;
* A project or field camp has not been reviewed in the past three years; and
* A project or field camp has been reviewed the previous season and issues, such as improper storage of hazardous materials, were identified that require follow-up

After the candidates are identified using the selection criteria, potential constraints associated with performing a field review for each are then identified to assess the feasibility of completing a review. Potential constraints that could affect the feasibility of a field review include:

* Limited availability of air, land, and/or sea transportation resources to access a field location;
* Limited availability of project or field camp personnel to support additional personnel at field location conducting the review;
* Remoteness or challenging accessibility of field location;
* Safety risks present at field location that would require significant training or field safety support;
* Availability of personnel to conduct the reviews;
* Scheduling conflicts;
* Weather conditions; and
* Other factors that would significantly impact resources otherwise available to support science

A project or field camp is selected for an environmental field review if the magnitude of the potential environmental risk or impact associated with the selection criteria is appropriately matched to the limitations imposed by the constraints. For example, a field camp that presents low environmental risk or impact but is difficult to travel to would not be prioritized for a field review.

Each project or field camp selected for an environmental field review is assigned a priority for the upcoming season. Table 1 summarizes the rationale for each priority level and the planning outcome based on prioritization. Effective planning is necessary to ensure that the resources allocated to conduct a particular review reflect the priority of the review and do not significantly affect resources that would otherwise be available to support science. When possible, environmental field reviews are performed concurrently with other science support activities to mitigate the impact on resource availability. The USAP personnel that complete the reviews coordinate with PIs, field camp managers, and other science implementation personnel to develop the appropriate field review schedule.

*Table 1 – Description of prioritization levels*

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| **Priority** | **Rationale for Prioritization** | **Planning Outcome** |
| High | One or more aspects of planned activities for the field season present significant environmental risk or impact and/or a recent field review identified issues that require follow-up. | An environmental field review would be performed and dedicated resources, if required, would be requested to complete the review. |
| Moderate | One or more aspects of planned activities for the field season present less than high environmental risk or impact. | An environmental field review would be performed if the impact to the availability of requested resources is minimal. |
| Low | Minimal aspects of planned activities for the field season present no more than low environmental risk or impact and/or a satisfactory field review was recently conducted. | An environmental field review would be performed if there is an opportunity to conduct the review concurrently with other science support activities. |

***Environmental Field Review Methods***

Once the projects and field camps selected for review are identified and the logistics of accomplishing the reviews have been planned, the process for conducting each environmental field review is typically as follows:

1. **Documentation associated with a project or field camp is reviewed prior to visiting the site.** Any EIA documents associated with the project or field camp are reviewed with a focus on understanding the predicted impacts and mitigation alternatives identified. Other documentation, such as records of previous environmental field reviews, are reviewed as well to understand the history of any previously identified challenges or opportunities for improvement.
2. **The project or field camp is visited by the personnel performing the environmental field review and current site activities and conditions are observed.** The personnel performing the review utilize a standardized checklist to ensure all appropriate facets of the review are addressed. Additionally, photographs are taken throughout the review to document the activities and conditions. A PI or camp manager with knowledge of the project will often accompany personnel.
3. **Potential challenges and opportunities for improvement are discussed with project participants and/or camp personnel.** If feasible, time is dedicated during the on-site portion of the field review to meet with project participants and/or camp personnel and solicit feedback relevant to environmental impact and mitigation alternatives. The information obtained during these discussions is essential for identifying any aspects that might not otherwise be apparent to personnel conducting the review. If time does not permit a discussion during the on-site portion of the review, the project participants and/or camp personnel are contacted afterwards to solicit this feedback.
4. **A summary of observations and recommendations is prepared and distributed to relevant stakeholders.** The summary of each environmental field review typically includes a general description of activities and conditions observed, the topics discussed with project participants and/or camp personnel, key findings, and recommendations for potential improvements.
5. **Follow-up actions are identified and will be implemented as appropriate and practicable.** The timeline for implementing recommended follow-up actions is dependent on the complexity and feasibility. For instance, a finding that fuel was stored in drums outside of secondary containment can typically be remedied quickly by supplying the project or field camp with appropriate secondary containment and instructing project participants or camp personnel on its use. On the other hand, a recommendation that would involve construction or the use of new technology likely requires capital investment, planning, and execution that may or may not be feasible. For the latter scenario, the personnel that conducted the environmental field review will make the recommendation to the appropriate stakeholders and further assessment of feasibility and possible implementation of the recommendation will be completed by others.

***Key Findings and Implementation of Recommended Follow-up Actions***

Possible key findings identified as the result of an environmental field review might include general observations, noteworthy practices, and/or opportunities for improvement. General observations typically document the overall conditions and activities observed during the review which may be useful for comparison against the predicted impacts and proposed activities described in the associated EIA document. Noteworthy practices often include mitigations that have been demonstrated to be effective and may have beneficial outcomes for wider implementation. Opportunities for improvement might range from simple changes, such as adjustments to operational procedures, to more complex improvements, such as implementing new technology or construction. The implementation of any recommended follow-up actions resulting from identified key findings always begins with notifying relevant stakeholders. Discussion with stakeholders allows the appropriate parties to begin assessing the feasibility of implementing the recommended follow-up actions. Some follow-up actions may be determined to be impracticable; however, practicable follow-up actions are managed by the relevant stakeholders from planning to implementation. Subsequent environmental field reviews are valuable to assess the outcome of the implementation of any follow-up actions.