Reclassification

Ministry

Environment and Parks

Describe: Basic Job Details

Position

Position ID

Position Name

Science Advisor

Current Class

Scientific 2

Requested Class

Scientific 3

Job Focus

Operations/Program

Supervisory Level

00 - No Supervision

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Vacant

Organizational Structure

Division, Branch/Unit

Resource Stewardship/Oil Sands Monitoring

Supervisor's Position ID

Supervisor's Position Name

Science Program Manager

Supervisor's Current Class

Manager (Zone 2)

Design: Identify Job Duties and Value

Changes Since Last Reviewed ?

Date yyyy-mm-dd

2022-11-17

Responsibilities Added:

Completes, advises and coordinates scientifically credible environmental data evaluation and reporting for the Oil Sands Monitoring (OSM) Program that meet project plan commitments and legislated reporting requirements. The end results include high quality and robust state of the environment reports and contributions to integrative peer-reviewed papers in scientific journals. Activities include:

- Compilation and validation of environmental data sets and publications from multiple government, industry and academic sources (air, water, biological, ecological), analyze results using appropriate statistical procedures, synthesize and interpret result and coordinate science reporting among oil sands monitoring scientific teams with a focus on state of the environment reporting and effective knowledge translation to stakeholders. These analyses will be undertaken in collaboration and with support of internal and external senior scientists.
- Collaborate with internal and external scientific experts in evaluation of multi-disciplinary data derived from the Oil Sands Monitoring Program to ensure scientific linkages with programs and interpretations employed elsewhere in Alberta and Canada;
- Leading and/or participating in collaborative writing of standard and non-standard reporting products communicating major observations and conclusions of long-term monitoring and focused research activities on the condition, status and trends of multiple indicators in the oil sands region of Alberta, including but not limited to peer-reviewed scientific papers, technical and state of the environment reports, major scientific synthesis

reports, and plain-language summary documents;
- Reviewing credibility of scientific content prepared for meetings, workshops, conferences, web pages, and briefing packages, including technical support for annual work plan reviews;
- Participate in scientific boards, panels and committees at the regional/provincial level where position is providing scientific expertise and consultation on integrative communication of science;
- Effectively communicating complex scientific issues/results to a wide range of expert and non-expert audiences, thereby ensuring government, industry, Indigenous communities and public stakeholders can best employ or apply the information resulting from the Oil Sands Monitoring Program's monitoring, evaluation and reporting programs.

Responsibilities Removed:

NA

Job Purpose and Organizational Context

Why the job exists:

This position is required to support the AEPA Science Co-Lead of the OSM Program and the Science Program Manager to advise and coordinate robust and timely integrated analyses of oil sands monitoring data, reports and non-technical contributions and deliverables for the AEPA contribution to the OSM program. This includes working with OSM Program scientific teams to synthesize and report on findings of the oil sands monitoring program for publication in peer-reviewed journals and special assessment reports, specifically ongoing integrated state of the environment reporting. The Science Advisor works with multi-disciplinary monitoring and research teams to compile and validate environmental data sets and publications from multiple government, industry and academic sources (air, water, biological, ecological), synthesize and coordinate science integrated reporting among oil sands monitoring scientific teams. These activities will be undertaken in collaboration and with support of internal and external senior scientists.

Key outcomes of this position include co-ordination of responses to oil sands monitoring related scientific information requests, briefing notes and work with science communications personnel to produce plain language reports and related materials on oil sands monitoring. Other key outcomes may include advice and leadership on effective delivery strategies for digital OSM monitoring data products that are publicly accessible via database portals. Emerging issue response and provision of advice and acquisition of background information including on AEPA-led OSM programs and with stakeholders is a part of this role. The position will also assist the Science Program Manager in technical reviews of OSM work plans and support the AEPA Science Co-Lead in other science driven activities within the Governance structure of the OSM Program, as required.

Responsibilities

This Science Advisor position is a full working level professional which provides scientific leadership and expertise in integrative environmental reporting with a focus on state of the environment and cumulative effects as well as monitoring data public delivery strategies. The position has significant impacts on government-wide environmental management by providing scientific and reporting input to the development and implementation of cumulative effects monitoring and related policies and regulations under the Alberta Environmental Protection and Enhancement Act and the Alberta Land Stewardship Act. The position is plays a key role in supporting and providing scientific advice to national environmental monitoring agreements such as the Memorandum of Understanding for oil sands monitoring between Alberta and Environment and Climate Change Canada.

The responsibilities of a Science Advisor position are related primarily to reporting on oil sands monitoring and research conducted by the Oil Sands Environmental Monitoring Program. Working independently and as part of a team, the Science Advisor responsibilities include:

Designing (20%) - the development and continuous improvement of an approach to State of the Environment and cumulative effects assessment and reporting. The end result is an internationally recognized cumulative effects assessment program that reports on environmental condition, identifies and incorporates valued components, is responsive to environmental change, and supports the cumulative effects management system. This includes:

- Developing conceptual models that summarize the known and hypothesized responses of multiple systems to environmental variation and anthropogenic stressors including wastewater release, atmospheric deposition, land use change, habitat alteration, invasive species, and human use;
- Identifying environmental themes and directions among oil sands reports and publications, and research and monitoring projects;

- Working with Indigenous Knowledge and Community Based Monitoring staff and participants to support braiding between western science and Indigenous wisdom in the design and implementation of research and monitoring programs.
- Advising on effective strategies to deliver OSM Program monitoring data to the public via digital portals.

Planning (10%) - The Science Advisor participates in multi-year research and monitoring projects that assess changes in environmental condition associated with development of oil sands resources and other human activities by:

- Evaluating environmental monitoring and research plans according to their contributions to environmental theme areas and environmental response pathways;
- Supporting annual project plans and budget summaries for OSM Branch leadership that articulate outcomes, activities, schedules and resource requirements;
- Leveraging scientific and technical capacity within the Branch and elsewhere to establish high-functioning teams that ensure that integrated reporting projects are credible and relevant.

Evaluation and Reporting (70%) - The Science Advisor leads and supports a scientifically credible integrated environmental data evaluation and reporting program that meets the priorities of the OSM Program with a focus on, but not limited to, state of environment reporting and cumulative effects assessment. The Science Advisor works under the supervision of Science Program Manager and with other senior science staff to evaluate and report on the state of the environment. Activities include (but are not limited to):

- Collaborating with internal and external scientific experts in evaluation of oil sands environmental monitoring data to ensure scientific consistency with programs or interpretations employed elsewhere in Canada, and internationally;
- Evaluating and synthesizing oil sands monitoring and research to identify and report on cumulative effects in northern Alberta;
- Leading and/or participating in collaborative writing of standard and non-standard reporting products communicating the major observations and conclusions of long-term and focused monitoring activities on the accumulated and projected state of the environment relative to oil sands development, including but not limited to technical and state of the environment reports, and plain-language summary documents;
- Contribute to the development of scientific products for public and scientific meetings, workshops, conferences, web pages, and briefing packages to government leadership;
- Effectively communicating complex scientific issues/results to a wide range of expert and non-expert audiences, thereby ensuring government, industry, Indigenous communities and public stakeholders can best employ or apply the information resulting from the OSM Program's monitoring, evaluation and reporting decisions.

Problem Solving

Typical problems solved:

This position:

- Must develop research initiatives, new methods/techniques, and research proposals requiring analytical and/or interpretative thinking, creative thinking, and problem-solving skills. Position has the authority to determine how projects are done independently once reporting priorities and needs are determined and approved by business objectives;
- Applies scientific expertise and knowledge and understanding in order to interpret and provide consultation and advice on scientific state of the environment and cumulative effects to various internal and external provincial stakeholders;
- Addresses challenging problems related to the assessing and interpretation of the state of the environment for multiple disciplines resulting from scientific uncertainty over the environmental mechanisms by which human activities and natural drivers such as climate affect the oil sands region;
- Participates in and leads integrated reporting components of a diverse science program generating new knowledge that enables creative solutions to current and anticipated environmental problems including contamination, changes in the structure and function of ecosystems, changing water levels and flows, impacts of industrial activities, etc.;
- Identifies and designs research projects delivered by teams involving academia, industry, indigenous community members, and government that are directly relevant to achieving the OSM Programs goals, specifically the assessment of cumulative environmental effects from oil sands development and state of environment reporting.
- Participates in research in an environment where guidelines or scientific standards are inadequate and significant scientific or technological innovations are required;

- Interacts with media from news organizations to communicate scientific findings and their implications;
- Responsible for integrated projects with annual budgets less than $1M, involving numerous internal and external staff and collaborators, and focussed on diverse research questions ranging from assessing the status and trends in the condition of Alberta's environment to the impacts and mitigation of industrial development.

Types of guidance available for problem solving:

Guidance for solving issues is provided by advice from colleagues including other OSM branch scientists, external experts/collaborators and advice and direction from senior managers.

Direct or indirect impacts of decisions:

The position has significant external environmental, economic, and social impacts by providing information that meets the reporting and data needs of internal and external stakeholders. These include (but are not limited to):

- Integration of complex scientific information from multiple disciplines to inform the public, Indigenous communities, environmental groups, and other stakeholders on environmental impacts from oil-sands development.
- Application of advanced and new scientific integration and knowledge translation skills to provide consultation and advice on various aspects of state of environment reporting and cumulative effects assessment and its impacts and implications for future OSM Program priorities and performance measures.
- Decisions made in this position shape key internal and external understanding of the results and impact of monitoring and research system design in the oil sands region, specifically through support of ongoing state of environment reporting and monitoring data delivery strategies.

Key Relationships

Major stakeholders and purpose of interactions:

Science Program Manager

- Daily to weekly interaction to discuss strategic and operational issues related to scientific priorities and work of the Branch and Program; develop and monitor performance agreements; prioritize and lead operational and strategic planning.

AEPA Leadership Team (Directors, Executive Directors, Chief Scientist)

- Weekly to monthly interactions to assist senior leaders in setting organizational priorities including developing strategic research plans; provide scientific input on groundwater quantity-related issues of importance to the Department and Government as a whole.

OSM Scientists and other OSM Branch Staff

Provision of relevant scientific information to key OSN Branch contacts including daily to weekly interactions with:

- **Environmental Sciences and Field Operations Section**: providing leadership and work collaboratively with other OSM Branch scientists including air, cumulative effects, surface water, wetland and geospatial experts.
- **Corporate Services and Governance Section:** scientific advice on data collection, data delivery strategies and knowledge translation including contributing to braiding of Indigenous wisdom with Western science to produce integrate knowledge products.

Scientists and other staff in AEPA and other Government of Alberta Departments including permanent staff, wage staff, co-op students, and interns

- Oversee and participate in the provision of relevant groundwater quantity scientific information to key AEP Division contacts.
- Key Department contacts outside AEP are the Alberta Geological Survey, the Alberta Energy Regulator, Alberta Health, and Alberta Energy.
- Weekly or monthly interactions to provide scientific leadership, consultation, and advice on hydrogeology programs and to facilitate the access to, and application of, scientific findings in the Government of Alberta and internationally.

Indigenous community members and their representatives

- Interactions to support integrated reporting programs that are relevant to the information needs of indigenous community members; programs may also directly involve community members in program delivery.

External scientists, including academia, industry, partner monitoring organizations, Government of Canada (Environment and Climate Change Canada), and other provincial or territorial governments.

- Interactions to lead and collaborate, where appropriate, on integrated state of environment reporting and other knowledge translation products.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Doctorate	Science		

If other, specify:

Job-specific experience, technical competencies, certification and/or training:

The position requires a PhD in a relevant scientific discipline related to environmental sciences with specific knowledge in one or more disciplines (e.g. water quality, biology, geochemistry, hydrology, hydrogeology, ecology).The position requires a minimum of 2 years post-doctoral or equivalent work experience in the synthesis and reporting of multi-disciplinary science programs and knowledge translation. A record of peer-reviewed publications in scientific journals commensurate with established peers with a similar level of experience is desirable.

The position requires extensive knowledge in the following areas:

• Compilation and synthesis of scientific datasets from multiple sources (air, water, biological, ecological) to inform integrated reporting on state of environment.
• Advanced statistical analyses of large environmental data sets, including data from the OSM Program monitoring and science programs and relevant programs or studies performed by others in Alberta and elsewhere
• New and emerging methods related to assessing the status of, and changes in, Alberta's environment
• Current and emerging provincial and national environmental issues
• Relevant partnerships with academic and industrial research communities, relevant government and non-government agencies, etc.
• Alberta's acts, regulations and policies and frameworks related to environment and cumulative effects.

The position requires the following skills and abilities:

• Demonstrated leadership skills, innovative and creative thinking, problem solving, and strategic thinking skills
• Strong data synthesis, analysis and interpretation skills
• Strong scientific writing skills, project management, and program planning skills
• Strong communication and interpersonal skills to develop and deliver understandable scientific information to key stakeholders, the scientific community, public audiences, and senior executives in government
• Ability to build and maintain effective and productive working relationships, including with Indigenous communities, various internal and external researchers, post-secondary institutions grad students, researchers, and specialized scientists
• Ability to successfully manage multiple projects, meet timelines and work under pressure
• Ability to identify, anticipate, and analyze complex issues
• Ability to synthesize findings to identify risks, possible actions and where possible, solutions

Behavioral Competencies

Competency	Level A B C D E	Level Definition	Examples of how this level best represents the job
Creative Problem Solving	○ ○ ◉ ○ ○	Engages the community and resources at hand to address issues: • Engages perspective to seek root causes • Finds ways to improve complex systems • Employs resources from other areas to solve problems	Compilation and validation of environmental data sets and publications from multiple government, industry and academic sources (air, water, biological, ecological), analyze results using appropriate statistical procedures, synthesize and interpret results, produce scientific manuscripts, and

		• Engages others and encourages debate and idea generation to solve problems while addressing risks	coordinate science reporting among oil sands monitoring scientific teams with a focus on state of the environment reporting.
Drive for Results	○ ○ ◉ ○ ○	Takes and delegates responsibility for outcomes: • Uses variety of resources to monitor own performance standards • Acknowledges even indirect responsibility • Commits to what is good for Albertans even if not immediately accepted • Reaches goals consistent with APS direction	Effectively communicating complex scientific issues/ results to a wide range of expert and non-expert audiences, thereby ensuring government, industry, Indigenous communities and public stakeholders can best employ or apply the information resulting from the Oil Sands Monitoring Program's monitoring, evaluation and reporting programs. Participate in scientific boards, panels and committees at the regional/ provincial level where position is providing scientific expertise and consultation on integrative communication of science;
Build Collaborative Environments	○ ○ ◉ ○ ○	Collaborates across functional areas and proactively addresses conflict: • Encourages broad thinking on projects, and works to eliminate barriers to progress • Facilitates communication and collaboration • Anticipates and reduces conflict at the outset • Credits others and gets talent recognized • Promotes collaboration and commitment	Collaborate with internal and external scientific experts in evaluation of multi-disciplinary data derived from the Oil Sands Monitoring Program to ensure scientific linkages with programs and interpretations employed elsewhere in Alberta and Canada. Leading and/or participating in collaborative writing of standard and non-standard reporting products communicating major observations and conclusions of long-term monitoring and focused research activities on the condition, status and trends of multiple indicators in the oil sands region of Alberta

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