

Directive 001

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Requirements for Site-Specific Liability Assessments in Support of the EUB's Liability Management Programs

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Requirements for Site-Specific Liability Assessments in Support of the EUB's Liability Management Programs

This Alberta Energy and Utilities Board (EUB) directive sets out the requirements for site-specific liability assessments. A “liability assessment” is an assessment conducted by a licensee or approval holder to estimate the cost to suspend, abandon, or reclaim a site. The approach and documentation specified in this directive are introduced to improve the consistency and accuracy of liability cost estimates submitted to the EUB. They do not modify requirements concerning how suspension, abandonment, and reclamation activities are to be conducted.

1 Initiation of a Liability Assessment

A licensee or approval holder may voluntarily conduct and submit a site-specific liability assessment to the EUB or they may be required to do so by the EUB in support of liability management programs.

1.1 Voluntary Submission of a Site-Specific Liability Assessment

Interim Directive (ID) 2001-08: Revised Licensee Liability Rating (LLR) Program and Energy Development Licence Transfer Requirements established the LLR Program, which assesses the financial viability of a licensee based on the ratio of its deemed assets to its deemed liability. The estimated abandonment and reclamation costs used in determining the deemed liability in the LLR are average values developed with industry input. Appendix 10 of *ID 2001-08* identifies three situations where a licensee, subject to financial security deposits, may initiate a site-specific liability assessment to permit a more accurate assessment of those deemed liabilities. This voluntary process is available only to a licensee with an LLR less than the deposit threshold currently set at 1.0. To use this provision, a licensee must submit separate liability assessments for each of its facilities or each of its wells to ensure that the review is complete and does not assess just selected low-cost sites.

A licensee may conduct an assessment of the

- abandonment liability of a facility if the average abandonment estimate determined by the EUB's Facility Well Equivalents Table (*ID 2001-08*, Appendix 7) is believed to be higher than expected costs;
- reclamation liability of a facility if the average reclamation estimates determined by the EUB's Regional Reclamation Cost Map (*ID 2001-08*, Appendix 8) and Facility Well Equivalents table are believed to be higher than expected costs; and
- reclamation liability of a well if the average reclamation estimate determined by the EUB's Regional Reclamation Cost Map is believed to be higher than expected costs.

1.2 EUB-Required Submission of a Site-Specific Liability Assessment

1.2.1 Potential Problem Site

A licensee may be required by the EUB to use the methodology specified in this directive to conduct a site-specific assessment of expected reclamation costs of a potential problem site: a site expected by the EUB to have a reclamation cost at least four times greater than the deemed reclamation liability normally calculated for a site of that type in that region of Alberta. The deemed reclamation liability applied in the LLR is normally calculated using the

Facility Well Equivalents Table (*ID 2001-08, Appendix 7*), or the Regional Reclamation Cost Map (*ID 2001-08, Appendix 8*), as may be amended from time to time.

Conditions that may result in a site being identified by the EUB as a potential problem site include

- insufficient recovery of spilled or released produced fluids or oilfield waste,
- significant off-lease damage to soil, vegetation, or a water body,
- evidence or high probability of groundwater contamination, and
- extraordinary surface reclamation issues, such as an extensive cut and fill.

A site-specific liability assessment of a potential problem site is used to modify the deemed reclamation liability applied in the LLR calculation. Where site-specific reclamation costs are estimated to be more than four times the normal deemed reclamation cost applied in the LLR, the site will be classified as a designated problem site. That designation will be applied until reclamation work has been conducted and a subsequent liability assessment acceptable to the EUB indicates that the reclamation cost is estimated to be less than four times the normal reclamation liability applied in the LLR.

1.2.2 Oilfield Waste Management Facilities

Guide 58: Oilfield Waste Management Requirements for the Upstream Petroleum Industry introduced financial security deposit requirements for EUB-approved oilfield waste management facilities. *ID 2001-04: Financial Security for Oilfield Waste Management Facilities* provided details of those requirements. Stage 2 of the program described in that ID requires EUB approval holders to conduct site-specific assessments of suspension and abandonment costs of those facilities by September 15, 2004. Stage 3 requires an update of those estimates plus assessment of site-specific reclamation costs by September 1, 2006. This directive specifies the approach and documentation for conducting liability assessments of oilfield waste management facilities and supplements the requirements of *ID 2001-04*.

2 Scope of a Liability Assessment

In estimating suspension, discontinuation, or abandonment costs, an evaluation of the development licensed or approved by the EUB, as well as the infrastructure and supporting equipment included in that authorization, must be conducted.

In estimating reclamation costs, all land or water directly affected by the construction, operation, or abandonment of the development licensed or approved by the EUB must be assessed. Licensees should be aware that all facilities, infrastructure, and equipment included in an EUB licence or approval require a reclamation certificate. This includes access roads, remote drilling waste sumps, land treatment areas, borrow pits, earthen structures, warehouses, campsites, lay-down areas, storage areas, bone yards, and air strips. For sites not eligible for a reclamation certificate, a plan to complete an equivalent degree of remediation and reclamation is required in order to estimate the associated costs.

3 Applicable Assessment Standards

3.1 Suspension and Abandonment

An assessment of suspension or abandonment costs must be based on a site-specific plan to meet or exceed applicable EUB requirements (including *Guide 20: Well Abandonment Guide*

and *Guide 59: Well Drilling and Completion Data Filing Requirements*) using generally accepted engineering practice.

3.2 Reclamation

Remediation and surface reclamation issues must be identified and initially evaluated through a phase 1 environmental site assessment conducted in a manner that meets or exceeds the standards provided in Alberta Environment (AENV) publication *T/573: Phase I Environmental Site Assessment Guideline for Upstream Oil and Gas Sites*. The phase 1 report is to document and evaluate historical development and current site conditions in order to identify significant remediation and surface reclamation issues warranting further assessment. The phase I assessment is also to compile site-specific data needed to develop a surface reclamation plan and estimate associated costs. If historical files or similar data are not available, the significance of the missing information must be evaluated and, where appropriate, a contingency amount provided in the cost estimate.

Contaminant and similar environmental issues warranting further assessment identified in the phase 1 report must be further evaluated and documented in a detailed report prepared in a manner that meets or exceeds standards provided in *Canadian Standards Association (CSA) Standard Z769-00: Phase II Environmental Site Assessment*. The phase II assessment is to evaluate the significance of the issues identified in the phase 1 report and, where needed, quantify their effects. The phase II assessment is to compile additional site-specific data needed to develop a remediation plan and estimate associated costs. If some liability issues cannot be sufficiently evaluated, the significance of the missing information must be evaluated and, where appropriate, a contingency amount provided in the cost estimate. A complete, signed copy of the phase 1 report, including field notes and contact prints or laser photocopies of aerial photographs, must be submitted to the EUB with the phase II assessment report.

The EUB may waive the requirement for a phase II environmental site assessment if a thorough and fully documented phase 1 assessment demonstrates that there are no significant environmental issues warranting further assessment. In those circumstances, all other requirements and standards specified in this document will apply.

4 Estimating Costs

An estimate of costs to address currently outstanding suspension, abandonment, or reclamation obligations must be based on a site-specific assessment as described above. A cost estimate must be developed as if a third party were conducting the work and supplying the necessary equipment. A cost estimate must be itemized and clearly show the subtotals for all major tasks. The associated unit rates must be based upon standard or published prices for all services. Price discounts available to all parties may be applied, but client-specific discounts, such as those for preferred client status or coordinated regional cleanups of multiple sites, may not be applied. A cost estimate must not apply a net present value for work to be conducted in the future. For a site included within the scope of the Orphan Fund, as described in Appendix 2 of *ID 2001-08*, credit for salvage value is not to be included, as salvage value is taken into consideration through the present value and salvage (PVS) factor applied in the LLR. The appendix of this directive summarizes the primary tasks to be evaluated by the EUB when reviewing a site-specific liability assessment.

4.1 Suspension Costs

An estimate of site-specific suspension costs must provide for three years of care, custody, and security of the well, facility, or pipeline.

4.2 Abandonment Costs

An estimate of site-specific abandonment costs must provide for the downhole and surface abandonment of a well, the decommissioning and dismantling of a facility, or the abandonment of a pipeline in a manner that meets or exceeds all EUB requirements. The cost estimate must itemize tasks and estimate costs to ensure that the well, facility, or pipeline is left in a permanently safe and secure condition. Abandonment costs of pipelines must indicate whether the pipe is being abandoned in place or removed.

4.3 Reclamation Costs

An estimate of reclamation costs must provide for both the remediation and surface reclamation of all land directly affected by the development in order to obtain a reclamation certificate in a predictable, expedient manner. For a site not eligible to obtain a reclamation certificate, a cost estimate to complete a comparable degree of remediation and surface reclamation is required.

The licensee or approval holder of a site where reclamation certification does not appear to be technically feasible is encouraged to contact the EUB's Liability Management Section at (403) 297-4485 for further guidance in estimating costs.

4.3.1 Remediation Costs

An estimate of remediation costs must be based on a remediation approach that has been demonstrated effective in Alberta in sufficiently treating affected soil or water so that a site may become eligible for a reclamation certificate. The remediation plan employed for costing purposes must not result in residual contamination being left in place that would restrict subsequent land capability relative to previous land use. Where contaminants cannot be excavated, the time and costs to actively remediate residual contamination in place must be estimated and supporting documentation provided. The remediation cost estimate must be based on a remediation plan that

- excavates, to the extent possible, all affected soil and subsoil in order to meet or exceed applicable guidelines;
- treats or disposes of oilfield waste at approved waste management facilities or, where oilfield waste and site characteristics warrant, follows EUB requirements for on-site oilfield waste management; and
- treats affected water, groundwater, bedrock, and inaccessible soil contamination to meet applicable guidelines, criteria, or standards.

Conversion of an in-place estimated volume of affected soil to a mass of material requiring transportation to an approved waste management facility is a critical factor that may greatly influence estimated remediation costs. When estimating costs to dispose of affected material off site, soil density must be measured in situ (in place) and not be based upon typical values or laboratory assessment of bulk density. As a minimum, in situ soil density must be measured for the most dense soil type encountered, and the method used to assess it must be

described. Soil density need not be assessed if costs are estimated for on-site treatment of affected soil.

4.3.2 Surface Reclamation Costs

An estimate of surface reclamation costs must be based on an approach that returns the ability of the land to support land uses that are similar, but not necessarily identical, to that which existed before development of the site. This includes the stabilization, contouring, conditioning, reconstruction, revegetation, and maintenance of the land and removal of the access road and directly related infrastructure (cattle guards, culverts, or bridges). If applicable, costs must also include all administrative and related tasks needed to obtain a reclamation certificate, such as a detailed site assessment, certificate application, and on-site inspection.

5 Other Reporting Requirements

5.1 Conditions Affecting Scope or Accuracy

A liability assessment report must document and summarize, in a distinct section, any deviation from the specified assessment standard or conditions that materially limited the scope of the assessment or the accuracy of the cost estimate. This includes the availability of historical information, personnel familiar with the history of the site, and site conditions, such as snow cover and access to the subsurface.

If historical site information is lacking or the assessment is otherwise impeded, an appropriate contingency amount must be included as a distinct item in the cost estimate. The methods used to search for the missing data or conduct the on-site assessment must be described and the rationale provided to substantiate the contingency amount included.

5.2 Noncompliance Conditions

In accordance with *CSA Z769-00* specifications, the assessment report must list conditions that are believed to contravene regulatory requirements and that may affect suspension, abandonment, or reclamation costs. The licensee or approval holder is required to promptly respond to noncompliance conditions and develop an action plan to restore and ensure continued compliance. Licensees and approval holders are also directed to the self-identification provisions of the EUB's enforcement process, as described in *Informational Letter (IL) 99-04: EUB Enforcement Process Plus Clarification*.

5.3 Roles and Qualifications of Personnel

A liability assessment submitted to the EUB for consideration must be based on a site assessment conducted only by appropriately trained and experienced personnel. The assessment report must clearly document, in a distinct section, the specific role of all personnel involved, their technical training, and their previous experience conducting assessments and developing cost estimates.

The assessment must be supervised and signed by a lead assessor who has completed post-secondary education in a directly related discipline and has prior experience estimating site-specific costs for suspension, abandonment, or reclamation. The lead assessor must also be a member in good standing of an association regulated by a professions or societies act of Alberta or be certified in Canada to conduct environmental site assessments by an agency that provides a comparable degree of professional accountability. This includes, but is not limited

to, appropriately trained and experienced members of the Alberta Institute of Agrologists, Alberta Society of Engineering Technologists, Alberta Society of Professional Biologists, Association of the Chemical Profession of Alberta, Association of Professional Engineers, Geologists and Geophysicists of Alberta, and College of Alberta Professional Foresters.

5.4 Certification of Work

The signatory statement must stipulate that the report was completed in accordance with the specified standard(s) and that the report clearly documents all conditions that materially limit the scope of the assessment or the accuracy of the cost estimate. A statement limiting the use of the report by other parties will be accepted if the EUB, AENV, and Alberta Sustainable Resource Development (SRD) are specifically cited as authorized users of the report.

The lead assessor must certify that he or she has prepared or supervised the liability assessment and placed his/her professional seal or stamp, as applicable. The report must be signed by the professional and include his/her professional designation or certification.

6 Submitting an Existing Liability Assessment

If a previously conducted liability assessment is submitted to the EUB for consideration, it must meet the requirements specified in this directive, be less than three years old, and be accompanied by an evaluation of cost changes since the site assessment was completed. Factors to be considered when updating existing liability assessments include changes in site conditions, unit rates used in estimating costs, and regulatory requirements.

7 Use of a Liability Assessment

Upon receipt, the EUB will review a liability assessment in relation to the requirements specified in this directive. If significant deficiencies are noted, the licensee or approval holder will be required to revise the assessment by a date specified by the EUB.

Once a liability assessment for sites included within the scope of the Orphan Fund is accepted by the EUB, it will be used to adjust the deemed liability applied in the LLR calculation. The duration that each deemed liability adjustment will remain acceptable to the EUB will depend primarily upon the rate at which site conditions are expected to change. It is anticipated that most assessments will remain in effect for approximately three years, unless site conditions or subsequent operations warrant a more or less frequent reassessment schedule. The scope of work required to update a liability assessment will be determined by the EUB in consultation with the licensee or approval holder.

For oilfield waste management facilities, once they are accepted by the EUB, a site-specific liability estimate will be used to determine financial security requirements. The required frequency to update a liability assessment for an oilfield waste management facility will be determined by the EUB and depend on site conditions and changes to the facility.

The current licensee or approval holder is responsible for ensuring that a liability assessment provided to the EUB is updated according to the schedule specified by the EUB. A liability assessment not kept up to date may result in the deemed liability reverting to typical costs or, for potential problem sites, EUB enforcement action.

A site-specific liability assessment provided to the EUB by a licensee or approval holder is intended only for the use of the licensee or approval holder, the EUB, AENV, and SRD. A

licensee or approval holder submitting a liability assessment to the EUB for consideration should be aware that submissions to the EUB may be subject to public disclosure. The EUB is not responsible to third parties for the completeness or accuracy of a liability assessment submitted to the EUB for review.

<Original Signed By>

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Board Member

Appendix: Tasks for Estimating Site-Specific Costs

The following tasks are typically considered by the EUB when reviewing a site-specific liability assessment submitted by a licensee or approval holder. In general, the greater the complexity, duration, or estimated cost of the anticipated work, the greater the level of detail expected in the cost estimate.

Estimating Project Management and Administration Costs

Costs for project management and administration tasks should be provided for in all projects.

Project Management

- initial planning
- regulatory applications and approvals
- on-site supervision
- reporting
- overall project coordination

Project Administration

- subcontractors and third-party services
- equipment rental
- consumable supplies (e.g., safety supplies)
- mobilization time and travel expenses
- subsistence

Estimating Suspension Costs

Well Suspension

- maintaining, replacing, or retrofitting the wellhead as required
- installing and maintaining downhole equipment
- introducing and maintaining the level of wellbore fluids as required
- testing wellhead and casing integrity, repairing as needed
- conducting initial and follow-up lease inspections
- providing site security

Facility Suspension

- removing and transporting all product, chemical, and oilfield waste inventories to EUB- or AENV-approved facilities
- securing the site, all buildings, and equipment to prevent unauthorized access or use
- providing weekly on-site security inspections and monthly reporting to the EUB
- maintaining all required monitoring and reporting programs
- maintaining utilities, such as electrical power, water, and natural gas
- maintaining vegetation control
- winterizing the facility and related infrastructure

Pipeline Suspension or Discontinuation

- physically isolating or disconnecting the pipeline from any operating well or facility
- cleaning the pipeline, if necessary
- purging the pipeline with fresh water, air, or inert gas
- maintaining corrosion control measures

Estimating Abandonment Costs

Well Abandonment

- removing all downhole equipment, such as rods and tubing
- abandoning all completed formations
- testing for and eliminating surface casing vent flow and gas migration
- disposing of any remaining drilling waste contained in on-site and remote sumps
- protecting groundwater
- conducting the surface abandonment

Facility Abandonment

- identifying dangerous materials (e.g., asbestos and natural occurring radioactive materials) and developing management plans
- shutting down, draining, and purging all lines, vessels, and ponds
- testing pond liquids and sludge
- removing and transporting product, dangerous goods, and oilfield waste for off-site management
- dismantling and removing all equipment, vessels, structures, and utilities
- removing or disposing of pads, berms, ponds, foundations, piles, concrete, and other base and surfacing materials
- abandoning or removing pipe
- removing utilidors and cathode beds (where required)

Pipeline Abandonment

- reviewing files and locating the line
- removing aboveground structures
- physically isolating or disconnecting the pipeline
- cleaning, if necessary
- purging with fresh water, air, or inert gas
- addressing residual contamination from spills
- plugging or capping all open ends
- intermediate cut and blocking (as required)
- removing underground pipelines where required

Estimating Reclamation Costs

Reclamation includes both remediation and surface reclamation tasks.

Remediation

- for each distinct area of the site requiring decontamination,
 - delineating the lateral and vertical extent of soil and underlying material containing regulated substance(s) in excess of applicable guidelines or criteria
 - estimating the volumes of affected and unaffected materials that would require excavation
 - excavating time and costs (excavator type, estimated time for excavation, cost per unit time, mobilization and demobilization costs)
 - characterizing affected materials for disposal or treatment (cost per sample, number of samples)
 - conducting confirmatory sampling (cost per sample, number of samples)
- transporting waste and disposing of it off site (mass of affected soil and subsoil, volume of liquid waste or affected water, number of shipments, transportation distance, transportation and disposal unit rates, and transportation and disposal cost subtotal), or characterizing the waste and treating it on site (volume of affected soil and subsoil to be treated, area available for land treatment, contaminant loading rates, treatment capital costs, treatment operating costs per year, estimated duration of treatment, and on-site waste treatment cost subtotal)
- treating and monitoring groundwater and/or bedrock contamination that cannot be excavated (volume of affected material, treatment capital costs, treatment operating costs per year, estimated duration of treatment, monitoring costs, confirmatory sampling, groundwater, and/or bedrock treatment costs subtotal)
- replacing and compacting backfill (volume required, costs to purchase, transport, replace, and compact, and backfill cost subtotal)
- miscellaneous expenses, such as safety supplies and vehicle use

Surface Reclamation

- recontouring and stabilizing slopes
- addressing any soil structure, soil sterilant, hydrophobicity, and similar issues
- removing gravel and other surface materials
- replacing topsoil
- restoring surface drainage patterns
- planting, maintaining, and monitoring vegetation (fertilizing and weed control)
- preparing a detailed site assessment
- where applicable, participating in the reclamation certificate process